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The Sylvatic Plague Committee*

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AT the sixth annual meeting at Helena, Mont., in July, 1935, the Western Branch of the American Public Health Association authorized the President to appoint a special Committee on Sylvatic Plague. The original appointments of 19 representatives from the States of Oregon, Washington, Nevada, Montana, Wyoming, Idaho, and California, the U. S. Public Health Service, U. S. Forest Service, and U. S. Biological Survey were supplemented by additional representatives to a total of 22. On October 7, 1935, 7 members of the committee, residents in San Francisco or vicinity, held a preliminary meeting to discuss a series of topics and questions which had been submitted to the chairman by the health officers of the western states or their representatives. In order that the members of the committee be informed relative to the purpose and duties, the status of sylvatic plague was outlined as follows:

1. *Historical*—In 1928 R. Jorge, in an exceedingly valuable monograph "Rongeurs et Puce" (Masson et Cie, page 36) summarized the detailed inquiries made by the Office International d'Hygiene Publique. He pointed out that owing to the widespread liability of rodents to *P. pestis* infection, plague not only occurs in epizoötic form among rats but also among wild rodents. Thus two types of epizoötics give rise to correspondingly different human epidemics. The great reservoir among wild rodents (72 species definitely known to suffer from spontaneous plague) slowly invading from colony to colony invariably independent of man's lines of communication and, as a rule, located in deserts or steppe-like countries is epidemiologically rural plague and so different from rat plague that Jorge proposed for this type of epizoötic the designation "peste selvatique" ("Selvatic plague"). In a more recent paper [1] he discusses the subject in detail and uses again the name "Peste selvatique." Although C. O. Stallybrass [2] and Wu Lien-Teh [3] accepted the above spelling, further etymologic inquiries left no doubt that the English word sylvatic in reference to plants or animals means "growing or running wild," and that therefore the correct title "Sylvatic

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Plague," as adopted by the *Journal of the American Medical Association*[4] should be used.

The introduction of this new terminology has not met with unanimous approval by the health officers. Some are of the opinion that plague is plague and from the standpoint of public health it makes little difference whether it is in rats or in wild rodents. In fact, they argue further that it is much better to let the public be made aware of the existence of plague within the boundaries of a county or state. By using a new term, the effectiveness of the mysterious terror creating, fearful unknown which adheres to the word plague, is lost, and the public is lulled into a feeling of perfect safety and financial inertia. Obviously, these arguments cannot influence the investigators. A brief consideration of the facts to be presented leaves no doubt that the type of plague now operating in the United States is different zoölogically and geographically from the plague of the Middle Ages or the "Black Death." It is not the work of rats but of wild rodents; it rages not in the inhabited parts of the country but in the sparsely inhabited or uninhabited, and as an epizoötic which is very poorly understood. By comparison with rat plague which as history has shown rises and falls within a century and finally flickers out, wild rodent-sylvatic plague is everlasting and permanent. With its sequelae so forcibly shown in the Manchurian pneumonic plague outbreaks of 1910–1911 and 1920–1921, and in Oakland, Calif., 1919, sylvatic plague unfolds a number of possibilities and deserves special scientific consideration.

That rodents other than rats may transmit plague to man was first recognized by Reidenko and reported in 1901[5] but it was reserved for W. B. Wherry, and in particular G. W. McCoy, to prove conclusively in 1908 that the ground squirrel (*Citellus beecheyi*) is not an infrequent source of human plague infection. It is not unlikely that these American studies materially influenced the inquiries which were made into the pneumonic plague catastrophes in Manchuria in 1910–1911. There is no doubt that they guided the carefully planned and brilliantly executed researches of J. A. Mitchell, J. H. H. Pirie and A. Ingram on plague in South Africa. It is painful to note that while English, Russians, Chinese, and South Americans contributed greatly to the elucidation of the sylvatic plague problems in the various foci discovered on 3 continents, American workers, following the departure of McCoy from California, were forced to stand by and devote their energies and inadequate funds to suppressive measures which, in the light of recent developments, are illusory and empirical.

As a guide to future investigations, it is important that the present-day knowledge concerning plague of the wild rodents be made more widely available. This is one of the functions of the Committee on Sylvatic Plague.

2. *Comparative Characteristics of Sylvatic Plague*—It is well known that the pandemic distribution of plague is maintained by a few species of domesticated rats. Sylvatic plague, however, remains localized, since in each region a particular fauna maintains the infective agent. As a rule, one principal species belonging to the family of sciuridae and gerbillinae living in subterranean colonies, in families or singly presides over the exchanges of the plague bacillus, while a group of small rodents (varieties of muridae perhaps jaculidae) act as pestiferous, complementary and intermediate hosts by supporting the epidemicity of the animal plague. The diverse perigrinations of these animals bring the disease agent in the vicinity of human habitations. This complex interplay has received

careful analysis through the time consuming and detailed studies of Nikanoroff in Southeast Russia. The pestigenic rodents are principally herbivorous and the infection, as a rule, is spread by flea carriage. However, carnivorous, cannibalistic habits may greatly favor the spread of the disease leading, as a rule, to a dying down of the epizoötic without providing for its persistence. Concerning the rise and fall (3 to 4 years) or the periodic cycles (10 to 11 years) of sylvatic plague in a given area, Elton (1925) concludes that plague may act as a population regulator which, in its periodic spacings, may be controlled by sun spots, while the short period fluctuations may be influenced by the climate. It remains to be seen whether this theory applies to any one of the principal sylvatic plague foci.

The pestiferous fleas vary according to the species of wild rodents; each group has its own hordes of pulicidae. They disseminate *P. pestis* among the rodents, and when the opportunity arises they attack man with ease. The mechanism of transmission as established by Bacot and Martin for the classical plague fleas has been confirmed by Golov and Joff for the *Ceratophyllus tesquorum* of the suslik.* Contrary to previous experiments showing in South Africa a flea infection carriage for from 3 to 4 months, the observations in Southeastern Russian foci have proved that some of the fleas may carry the infection for 206 days and starve for nearly 196 days. As a rule, these insects attach themselves only while feeding. Since they remain in the nests, it is doubtless difficult to secure a true picture of the ectoparasitic fauna (flea index) by merely counting the fleas found on the wild rodents. Both the fleas captured on the animals and those gathered in the burrows must be counted in order to secure a picture of the vectors to which the rodents are exposed.

The anatomical markings of the rodents involved in sylvatic plague are characterized by lesions in the lymph-nodes and striking tendency to latent infections without gross pathology. Secondary or even primary pulmonary localization is much more common than in the rats. This form of localization may be chronic. Involvements of the lymph-nodes adjacent to the upper and lower gastrointestinal tube as a sequel of cannibalism are by no means infrequent. The diversity of the pathologic lesions in the sylvatic plague animals is no doubt influenced by the variable susceptibility of the rodents during and after hibernation, and possibly the infectiousness of *P. pestis* in the closed lesions. There is always the possibility that human plague due to sylvatic sources is primarily bubonic and septicemic, and may be followed by secondary pulmonary localization (this tendency first clearly recognized in Manchuria has also been stressed by McCoy). The handling of cadavers, furs of the rodents, or direct contact may be responsible for the peculiar involvement of the lung by inhalation. In this respect, the mode and pathway of infection is in part reflected by the laboratory accidents which, as a rule, manifest themselves as plague pneumonias.

3. The renewed interest in sylvatic plague in California and in the western states may be attributed to observations made early in 1934. An increased mortality among the ground squirrels (*Citellus beecheyi*) on the ranches lying north and east of Bakersfield was recognized as plague. Thus for the first time in the history of plague in California, the disease had migrated from the coast counties and, without leaving markings concerning its wanderings, appeared in the foothills of the Sierra Nevadas. It

* Spermophile, or ground squirrel of Northeastern Europe and Northwestern Asia.

is needless to emphasize that the development of these new foci despite well organized suppressive measures created justifiable concern. The many discussions incident to these unforeseen developments acquainted the Agricultural Commissioners, the U. S. Forestry Service, and the Biological Service with the problems involved. Representatives of these agencies engaged in the distribution of poison on government lands in Modoc County (Northeastern County of California) observed dying and dead squirrels on ranches north and east of Alturas.

Surveys made during the summer proved plague in 5.1 per cent of the shot or dead Oregon ground squirrels (*Citellus oregonus* [Merriam]) collected in an area of 65,000 acres. Inquiries disclosed the interesting fact that at periodic intervals over many years, epidemics have appeared among the squirrels of Modoc County. Since tularemia is by no means uncommon in this particular part of California, it was quite generally believed that the rodent epizoötics were caused by *Bacterium tularense*. Shortly after the discovery of sylvatic plague in Northern California, reports were received relative to the bacteriological confirmation of a case of human plague at Lakeview, Ore. (May 16, 1934). The history of this case as presented by William Levin [6] is as follows:

> C. S., aged 30, sheepherder, was employed on a desert near Lakeview. There were a number of tick bites on his right ankle, which (probably?) were the source of his infection. The onset of the symptoms was on May 19; the temperature was 105°, pulse 110, leukocytes 14,000. There was tenderness and a swelling in the right groin the size of an egg. There was slight improvement the next day. On the following day the patient felt strange; there was noticed a dusky livid hue over his body. This became more pronounced and death occurred on May 21 from an overwhelming toxemia. The patient was very dark at death.

Extensive surveys clearly showed that the Southern Oregonian focus responsible for the infection in the sheepherder was connected with the California areas, and that the invasion occurred from the north and is in no way connected with the principal areas south of the Sacramento River.

Aside from the fatal human case of plague in Oregon, a very interesting observation was made in California. In June, 1934, a 10 year old school boy from Porterville visited a ranch on which plague infected squirrels had been found, and contracted bubonic plague (right axillary bubo). He recovered from his local process, but died on the 125th day after the onset of his illness from chronic plague meningitis. This observation proves the occurrence of chronic latent plague in man.

In April, 1935, shortly after the first squirrels emerged from hibernation, the survey activities were renewed in Modoc County. New areas were recognized. Plague was proved in 107 Oregon squirrels (7.1 per cent, 1,492 shot squirrels), 4 wood rats (*Neotoma*) and 1 white footed field mouse (*Peromyscus*). Ranchers also reported squirrel mortality on the valley meadows of Northern Lassen County which orographically connects the sylvatic plague foci of Modoc County. An examination of 198 squirrels yielded 1.5 per cent infected with *P. pestis*. In the course of these investigations, latent, inapparent plague was discovered by guinea pig inoculations of lymph-nodes removed from Oregon squirrels with no gross anatomical markings of disease.

Simultaneously, the U. S. Public Health Service proved plague infection in the Oregon and Columbia squirrels found dead or shot in Lake, Grant, and Wallowa Counties, Ore. Of greatest concern and importance was doubtless the demonstration of plague in a ground squirrel (*Citellus richardsonii*) near

Dillon, Beaverhead County, Mont. Despite the extensive reservoir of diseased rodents, no human cases were reported during the year 1935.

In this connection, it appears advisable to place on record the observations made in 1936 to date, June, 1936, although this information was obviously not presented to the committee in October, 1935.

During March, 1936, the Agricultural Commissioner of Ventura County accidentally noted a sick *Citellus beecheyi* which on autopsy presented the lesions of subacute plague. The rodent was found adjacent to an old sylvatic plague focus. Far more alarming is the recognition of a case of pestis minor (left axillary lymph-node) in a veterinarian who practised in Sonoma County, north of San Francisco Bay. Despite detailed investigations, the source of this infection has not as yet been established. Equally significant is the demonstration of plague infected fleas collected from *Citellus armatus* in Elko County, Nevada, by Dr. C. R. Eskey of the U. S. Public Health Service in May, 1936. Several hundred squirrels had been examined for plague in this region but none had been found with suspicious lesions.

The new procedure to locate plague infection among squirrels by collecting the fleas present on the rodents and by injecting an emulsion of the insects into guinea pigs was originally suggested by Dr. Eskey to the committee. The method is exceedingly promising since the Hooper Foundation has succeeded equally in demonstrating plague infected fleas in Ventura County in the Fandango Valley, the Modoc National Forest, and Pine Creek (Modoc County). In the 4 instances, the insects had been collected from rodents without suspicious plague lesions. Active sylvatic plague had not been observed in Fandango Valley since the fall of 1934. Quite recently septicemic and localizing subacute plague has again been proved in the squirrels of Northern Lassen County and new areas in Modoc and Santa Cruz Counties. A second case of pestis minor in an 11 year old boy has been diagnosed in the southern sector of Monterey County.

Dr. C. R. Eskey has demonstrated *P. pestis* in fleas and squirrels (*Citellus armatus*) forwarded by the U. S. Public Health Service and the State of Idaho mobile laboratories, on two ranches in Bonneville County, Ida. A case of human plague has been recognized in Southwestern Utah.

Following the presentation of the facts, the group discussed and answered a number of questions which had been submitted for consideration by the committee. Since these deliberations brought to light several pertinent points of general interest, it is deemed advisable to detail the questions and answers.

(a) *What is the scope of the work done or expected to be done by the federal agencies in connection with sylvatic plague?*

The U. S. Public Health Service has been directing its efforts and will continue to determine the presence of plague infection in field rodents in the 8 western states, with more limited application to California due to the extensive survey activities conducted by the State Department of Public Health.

Under the guidance of Dr. C. R. Eskey, the plague laboratory at San Francisco will make field surveys, and examine specimens of rodents received from county agents, state veterinarians, and other officials. Incidental to the determination of sylvatic plague areas, special studies relative to the insect vectors and ectoparasites will be carried out. It is intended that monthly reports of the number of rodents examined will be submitted to the state health officers. Special reports will be forwarded immediately in the event of

plague infected rodents being found and recognized.

The U. S. Biological Survey will cooperate with the Agricultural Regulatory and Service Agencies in the educational and control work in the several states and, in the case of the federally owned and controlled lands, it will operate directly in coöperation with the U. S. Forest Service. The U. S. Forest Service, wherever its interests are involved, will seek the assistance of the U. S. Biological Survey in an effort to eliminate diseased rodents from the National Forest areas.

(b) *What should be expected of the state health departments in the control of sylvatic plague?*

It is fully recognized that each state must ultimately recognize and appreciate its own responsibility with respect to sylvatic plague in the field rodent population, and should make every effort to coöperate with the federal agencies to determine the extent and distribution of the disease. In particular, it is desirable that provisions be made for a state laboratory to care for the determinations of plague within its jurisdiction. It is generally agreed that the control work should be centralized with the established agencies entrusted with rodent suppressive measures. In all of the western states, with the exception of California, rodent control is carried out in coöperation with the U. S. Biological Survey. In a number of the states, the allotments for control are directed to the Biological Survey, while in others a local agency supported by state funds operates in close coöperation with the Biological Survey. However, it is recalled that the activities of the Biological Survey are limited by the federal funds allotted, although it stands ready to coöperate with any existing agency or any agency which may be established.

In California the following system of coöperation has been developed: The State Department of Public Health, through its 5 survey crews, determines the location of the sylvatic plague foci and reports them to the Agricultural Regulatory Agencies consisting of the State Department of Agriculture and the County Agricultural Commissioners. The State Legislature makes direct allocation of funds to the State Department of Agriculture for rodent elimination on plague areas. These funds are utilized on a three-way coöperative basis whereby the state, county, and land owner participate. This arrangement insures an equitable distribution of the burden of the costs, and impresses the land owner with the benefits derived from ground squirrel and rodent elimination on his property.

(c) *Should the activities in any state be concentrated in one department, such as the state health department? or should they be divided among several departments, such as the departments of health or agriculture, sanitary live stock department, veterinary department, extension service, etc.?*

In the event sylvatic plague has been demonstrated within the boundaries of a state, it is imperative that a committee, called by the state health officers, define the duties of the various agencies temporarily enthusiastic in participating in the control of a newly discovered disease. Experience has shown that the health department in coöperation with the U. S. Public Health Service is best qualified to determine and diagnose the existence of plague. In turn, the department reports to the properly constituted agencies, either a special commission, the Extension Service, the U. S. Biological Survey of any other agency.

When plague has been found, the control of the disease in its various ramifications is a joint responsibility of the state and federal governments. However, it is fully recognized that the state in whose boundaries sylvatic plague has

been proved will assume responsibility and participate to the fullest extent by furnishing funds both for disease detection and control. Each state should have its own plague laboratory, properly equipped and staffed with trained personnel. Furthermore, it will be necessary to provide definite standards for systematic follow-up work, and intra- and interstate reporting not only of the sylvatic foci discovered but also with respect to the results secured in the course of the suppressive measures.

It is generally recognized that the agencies entrusted with the control of the economic damage directly attributable to rodent pests must concentrate their efforts on the elimination of diseased rodents and their vectors immediately following the recognition of plague. This principle assumes the position of primary and major importance, and every other activity must be subordinated and coördinated with the plague program.

In addition to the discussion of the above questions, the group considered the methods which may be used to obtain information concerning the location of sick, dying, or dead rodents; procedures of shipping specimens suspected of plague; publicity; institutional course on sylvatic plague in San Francisco; appointment of an executive committee; and future meetings. The committee was circularized with a questionnaire relative to the items mentioned.

INSTRUCTIONAL SHORT COURSE ON SYLVATIC PLAGUE

Under the auspices of the committee, an instructional short course was held at San Francisco and vicinity. On April 27 and 28, 1936, lectures and demonstrations were given in the laboratories and lecture rooms of the Department of Medical Bacteriology, University of California, Medical Center, and the U. S. Public Health Service Plague Laboratory, Marine Hospital, San Francisco. There were in attendance 125 representatives from Idaho, Montana, Oregon, Washington, and California. Those present were furnished a detailed mimeographed syllabus of the lecture and laboratory demonstrations.

Splendid demonstrations concerning the equipment and technic employed in the field study of plague were given by E. T. Ross, Chief Sanitary Inspector, California State Department of Public Health and his staff near Brentwood, Contra Costa County, on April 29, 1936. Similarly, on April 30, 1936, E. E. Horn and staff members of the U. S. Biological Survey and California State Department of Agriculture gave field instruction in the methods used in rodent control.

Careful planning assured a perfect organization and an uneventful execution of the unique program which was greatly appreciated by everyone in attendance. Judging from reports received, the course must be considered the major contribution of the committee to the organization of an effective control program against sylvatic plague in the western states. Plans are being made to repeat this type of instruction when needed.

During the short course, the chairman called a general meeting. He outlined the long view of the problem and sketched the duties of the committee as follows:

1. To act as an open forum for the discussion of all phases of the problem connected with sylvatic plague research and suppressive measures.
2. To coördinate the studies and control activities in the western states.
3. To advise and guide the publicity and educational program.
4. To organize instructional facilities, and to provide scientific aid in connection with the identification of rodent diseases and insect vectors.
5. To inform at frequent intervals the official agencies of the states concerning the trends of sylvatic plague.

6. To aid the agencies involved in plague work in securing adequate funds for the maintenance of laboratory and field investigative facilities as well as proper rodent control measures.

Dr. R. R. Parker, Director of the Rocky Mountain Laboratory, U. S. Public Health Service, at Hamilton, Mont., presented a carefully prepared and exhaustive research program on sylvatic plague embodying 15 major points. The headings are herewith recorded in order to indicate the broad scope of the investigative field involved.

1. Study of fleas of the native fauna
2. Studies of other parasites of the native fauna
3. Study of the native fauna (identification and ecology of species)
4. Ecology of the burrows and nests of the native fauna (during active season and during estivation and hibernation)
5. Susceptibility to plague of the native fauna (particularly rodents at first)
6. Laboratory study of the disease in susceptible native animals (course, types of disease and immunity)
7. Flea culture
8. Determination of what species of native fleas are active or are capable of acting as transmitting agents of plague
9. Determination of whether any parasites other than fleas are acting or are capable of acting as plague transmitting agents, or as agents in the natural maintenance and perpetuation of the disease
10. Natural occurrence of plague in the native fauna and fleas (tests for inapparent infection, occurrence of immune animals of susceptible species and their significance)
11. Study of how sylvatic plague survives the winter
12. Study of means by which plague is spread
13. How plague is maintained in nature
14. Study of diseases of small animals other than plague and particularly those that simulate plague (The Hooper Foundation will act as the clearing center for problems of this sort.)
15. Observations relating to direct and indirect opportunities for contact between susceptible species of the native fauna and man

The committee fully appreciates that the effective suppressive measures can be planned only when the scientific investigations have furnished the answers to the many unknown factors doubtless operating on a large scale. Obviously, a research program of the scope outlined must by necessity be divided among many properly qualified workers. Field investigations are increasingly more important than laboratory studies. The University of California group has perfected plans to study certain phases grouped under 1, 4, 5, 6, and 11.

Following the presentation of the report by Dr. Parker, the committee discussed in detail a number of important subjects, and by resolution adopted the following recommendations:

(A) The Sylvatic Plague Committee, desirous of the coöperation of Dr. M. A. Stewart, Assistant Professor of Entomology, University of California Branch at Davis, requested the chairman to communicate with Professor C. B. Hutchison, Dean of the College of Agriculture, in order to secure permission for the establishment of a central authority urgently needed for the identification of fleas collected from rodents. (This permission has been granted; Professor Stewart has accepted the invitation; and a circular detailing the methods to collect and ship fleas to the Central Flea Laboratory has been mailed to the members of the committee.)

(B) The Sylvatic Plague Committee will communicate with the state universities, colleges, and museums throughout the western states to devote attention to the investigations, and to record the distribution and ranges of rodent groups, birds, and mammals which may be incriminated or suspected of serving as carriers of diseases transmissible to man.

(C) By authority of the committee, the chairman was delegated to invite the U. S. Bureau of Biological Survey to place at the disposal of the members such data and information from their faunal studies, both complete and incomplete, as may be needed in the elucidation of certain phases of sylvatic plague.

(D) The committee authorized a well worded communication calling the attention of the officials in the western states to the proper function to be performed by the states and the financial needs relative thereto in respect to sylvatic plague; the communication to outline the relationships of the state hy-

gienic laboratories to the plague investigations now in progress.

(E) The committee endorses the proposal to address a circular letter to the directors of agricultural extensions and the directors of the several departments of agriculture in the western states requesting that the committee be advised relative to forthcoming meetings of county agents and farmers in order that representatives of the Plague Committee may be present to discuss the problems involved and to solicit coöperation in reporting epidemics among rodents. (The chairman has addressed a group of representatives from the various departments at Salt Lake City, Utah, May 16, 1936, at Seattle, June 29, and Portland, June 30, 1936.)

The chairman of the committee, in submitting the report and the resolutions to the Western Branch of the American Public Health Association for its approval, recommends the reappointment of the membership, executive committee and continuation of the entire committee as constituted.

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Plague Infection Discovered in Fleas and Lice Taken from Marmots in Montana and in a Marmot in Utah

A REPORT has been received, under date of August 10, 1936, from Surgeon C. R. Eskey, in charge of plague suppressive measures, San Francisco, Calif., that plague infection had been discovered in fleas and lice taken from ground hogs (marmots) which had been killed in Small Horn Canyon, Mont., about 12 miles southwest of Dillon, Beaverhead County. Following is Surgeon Eskey's report:

Plague has been determined in both fleas and lice taken from 7 ground hogs (marmots) shot at the head of Small Horn Canyon, about 12 miles southwest of Dillon, Beaverhead County, Mont., July 25, 1936, by employees of the Rocky Mountain Laboratory. One hundred and fifty-three fleas and 26 lice were collected in separate bottles and inoculated into guinea pigs, which died in 6 and 3 days, respectively. Secondary inoculations and cultures gave typical plague reactions.

These findings are of interest because they provide the first direct evidence that plague exists among marmots in America and demonstrate that the infection may be recovered from lice as well as fleas taken from these rodents. Fatal epizoötics have been noted among marmots in a number of localities in western states, but no infected animal has yet been found.

The foregoing report has been supplemented by later information (dated August 13) received from Surgeon Eskey in which he states that plague has been determined in a sick ground hog (marmot) killed July 31, 1936, in Indian Creek Canyon, 14 miles northeast of Beaver, Beaver County, Utah. This is believed to be the first plague infected marmot reported in the United States.—*Pub. Health Rep.* 51, 34:1059 (Aug. 21), 1936.

A Study of the Pollution of a Shellfish Producing Area*

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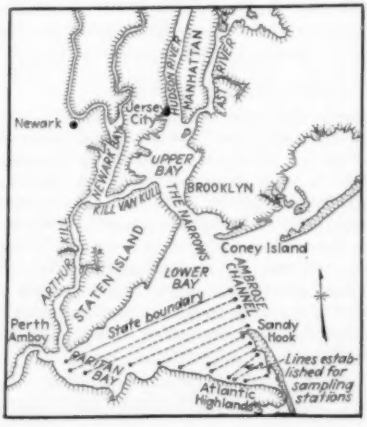
FOR many years Raritan Bay † has been a prolific producer of both hard and soft clams. Whether this variety of shellfish was harvested from this area years ago to the detriment of the public health I cannot now say but with our present knowledge concerning the relationship between contaminated shellfish and the incidence of certain diseases, it behooves present-day public health agencies to consider more carefully the sources of market shellfish.

EXISTING RESTRICTIONS

The health authorities of New York City recognized the danger in taking clams from the polluted waters of this large area as early as December, 1924, when they closed their markets to all shellfish from them except string clams marked "For cooking purposes only." New York State officials closed the New York portion of the bay for the taking of shellfish for marketing purposes in 1925, and in 1934 the New Jersey State Board of Health took similar action on certain shoreline areas, thereby restricting the taking of clams to those sections which in their opinion were satisfactory. All of these official actions reduced the clamming grounds in the bay to an area much smaller than was formerly available. This area is a good clam growing one which can support a large number of shellfishermen. In Highlands, New Jersey, the taking, shucking and packing of clams is one of the important industries today and the livelihood of many families is dependent upon activities incident to it. There is no inclination on the part of any public health officer whom I know to insist upon the closure or restriction of any shellfish area which does not merit such action. However, if there is any doubt concerning the quality of

RARITAN BAY IN RELATION TO OTHER PARTS OF THE NEW YORK METROPOLITAN DISTRICT AND THE AREA IN WHICH SAMPLING LINES WERE ESTABLISHED



* Presented at the Annual Meeting of the New Jersey Sewage Works Association at Trenton, N. J., March 19, 1935.

† Raritan Bay, as used in this paper, will be considered as those areas shown on U. S. Coast & Geodetic chart #369 as Raritan Bay, Sandy Hook Bay and Lower Bay.

an area, a decision must be made against the area and in favor of the public health. The only tenable position—one with which the shellfish industry as a whole will agree, I am sure—is that no chance should be taken when disease, suffering, and possibly the loss of lives are in one balance with the need for limiting or restricting a local industry in the other.

It was, apparently, with these considerations in mind that New York City through its Board of Health erected a barrier against clams from this bay by prohibiting their sale in that city. Inability to sell to New York City dealers presented a severe handicap to the shellfish industry along the New Jersey shore of Raritan Bay and warranted relief measures if they could be secured safely. This was the situation in the summer of 1935 when the desirability of this survey was first mentioned. After several conferences by the interested groups, New York City agreed to permit the sale of clams within city limits from those areas in Raritan Bay, N. J., found by the U. S. Public Health Service to be suitable for clam harvesting. Having secured such a fair decision, it remained only to ascertain by careful study what sections—if any—of these New Jersey waters were suitable for the removal of clams for direct sale to dealers.

FACTORS INCLUDED IN STUDY

The *Report of the Committee on Sanitary Control of the Shellfish Industry in the United States* drawn up and published in 1925 set forth a number of specific recommendations concerning the scope and enforcement of state regulations for the sanitary control of shellfish. One of the essential requirements was stated to be "that no shellfish should be offered for sale except such as have been taken from beds which, after careful and competent examination, are found to be free from any justifiable suspicion of contamination which is judged to be either dangerous or offensive." In discussing the provisions essential to fulfilling this requirement, the committee outlined briefly how and under what conditions an area should be approved. Its stipulations were as follows:

> . . . that before approval is given for the use of any area for the taking of oysters for market, the area should be carefully examined by competent and responsible officials.
>
> The examination of the area should always include a sanitary survey, which should be supplemented by bacteriological examinations of the water and shellfish wherever these may be necessary for competent judgment. Since it is essential that the examinations be made and interpreted only by persons having the necessary qualifications of technical education and experience, it is assumed that the purposes, methods, and limitations of sanitary surveys and bacteriological examinations will be understood and need be outlined only briefly here.
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> The primary purpose of the sanitary survey is to estimate as accurately as possible the extent of actual or potential contamination of the waters in question with *human excreta*.
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> A distinction must be made between such pollution and that from animal sources or from the soil, as a necessary basis for the interpretation of the results of bacteriological examinations.
>
> The survey should, therefore, take careful account of all the determinable factors affecting pollution; namely, the sources of actual or potential fecal contamination, with special reference to human excreta, considered in relation to methods and efficacy of artificial treatment of sewage and to the natural safeguards afforded by dilution in the receiving body of water and by natural purification, as influenced by temperature and by time intervals between contaminating sources and the shellfish beds, due regard being paid to the likelihood of contamination in coves and inlets from sources which would be insignificant in relation to a large and well mixed body of water. Careful consideration should also be given to the likelihood of dangerous contamination from boats, especially in small and shallow bodies of water and in the vicinity of main ship channels. Any discharge of excreta from oyster boats in the vicinity of shellfish beds should be rigidly prohibited.
>
> Although the information furnished by a survey of this kind is not exact in a quanti-

tative sense, it will be sufficient for forming a reliable judgment when the examination shows such pollution or risk of pollution as to render the area obviously unfit, or conversely, where it shows that there is no discoverable probability of dangerous contamination. Where the survey shows exposure to more or less constant but probably slight pollution with sewage from rather distant sources, or with surface drainage from populous unsewered territory, so that the safety of the area depends upon the protection afforded by dilution and natural purification, there is need of more exact quantitative information than is furnished by a sanitary inspection alone; and in such cases bacteriological examinations of the waters and shellfish are a necessary part of the study.

Undertaking an inspection such as outlined above consequently involved a study by competent personnel of actual and potential sources of contamination; the results to be summarized in a quantitative way and considered in relation to dilution, tides, currents, and time intervals. Such a study necessarily entailed the collection of both physical and bacteriological data.

In my elaboration of this particular study, I will discuss (a) the quantities of sewage reaching Raritan Bay and their probable effect on the New Jersey waters thereof; (b) the influence of natural factors such as winds and tidal currents; and (c) the bacteriological confirmation of tentative decisions reached from the examination of the physical data.

QUANTITIES OF SEWAGE DISCHARGED

Through the coöperation of the Department of Sanitation, City of New York, and the State Department of Health of New Jersey, I have been able to secure approximate figures on the quantities of sewage reaching Raritan Bay either directly or by way of tributary streams. In Table I these data are tabulated divided in two different ways; namely, on the basis of (1) treatment and (2) the receiving body of water. Obviously, these figures include only the discharges from territory lying within a reasonable distance of Raritan Bay.

In New York, treatment as shown in this table consists of fine screens with or without chlorination. In New Jersey, it involves combinations of the processes of sedimentation, oxidation, and chlorination, and in most cases is of higher character than treatment at any New York State outlet includes.

AVAILABLE DILUTING WATER

In the following discussion of available dilution, the treated and incompletely treated wastes will be ignored and only untreated sewage considered. The greatest volume of raw sewage finding its way into the bay through contributory streams comes from New York State and is approximately 858 m.g.d. With the exception of possibly 14 m.g.d. most of this large amount or 844 m.g.d. passes into the bay through the Narrows. This seems to be a tremendous volume but when it is compared with the entire flow of water through this section it is not so imposing. In the *Report of the Metropolitan Sewerage Commission of New York* (1914), a U. S. Coast and Geodetic Survey letter describes a discharge at the Narrows of 105,000 m.g.d. at ebb tide, and 97,500 m.g.d. at flood tide, averaging 101,250 m.g.d. The flow of sewage at this point is, therefore, about 0.84 per cent of the diluting water there. In other terms, there are 119 gallons of diluting water for each gallon of sewage.

There are approximately 55 and 25 m.g.d. of sewage coming from Arthur Kill (plus Newark Bay) and the Raritan River respectively. Although precise figures on the flow of water in these two tributaries are not available, both of them are relatively large with 25′ to 40′ channels, and unquestionably have sufficient quantities of water issuing from them to give a dilution factor

higher than that for the Narrows. The contribution to the bay from the Shrewsbury River (0.1 m.g.d.) is too small as compared to these others to warrant further consideration of it. It should be kept in mind, also, that a large proportion of the sewage heretofore mentioned enters the contributing

TABLE I

SEWAGE CONTRIBUTED TO RARITAN BAY
(Directly or by way of tributary streams)

Receiving Waters	*Approximate Discharge in m.g.d.*			*Sources of Waste—in General*
	Treated	*Incompletely Treated*	*Untreated*	
Hudson River	26.0	....	11.0	N. Y. State—Westchester Co.
	....	....	0.5	" Bronx Boro.
	18.0	....	121.3	" Manhattan Boro.
East River	....	....	90.0	" Manhattan Boro.
	....	....	99.0	" Bronx Boro.
	....	....	280.5	" Manhattan and Bronx Boros.
	....	....	15.6	" Queens Boro.
	....	....	102.5	" Brooklyn Boro.
Upper Bay	....	....	117.4	" Brooklyn Boro.
and Narrows	2.2	....	6.3	" Staten Island
Kill Van Kull and Arthur Kill	....	....	13.7	" Staten Island
(Sub-total 1)	46.2	....	857.8	N. Y. State
Shrewsbury River	0.7	0.1	0.1	N. J. State—5 municipalities
Matawan Creek	0.2	....	....	" Matawan
Arthur Kill	....	....	41.0	" Rahway and Elizabeth Valleys
Raritan River	5.4	4.2	16.3	" 21 municipalities and private groups
Newark Bay	5.1	13.7	9.0	" Hackensack Valley
Upper Bay	....	166.0	....	" Passaic Valley.
(Sub-total 2)	11.4	184.0	66.4	N. J. State
Total A (1 plus 2)	57.6	184.0	924.2	N. Y. and N. J. States
Raritan Bay	3.3	....	1.1	N. Y. State—Staten Island
	42.0	....	44.0	" Brooklyn Boro.
(Sub-total 3)	45.3	....	45.1	N. Y. State
Raritan Bay	0.8	0.5	....	N. J. State—3 municipalities
(Sub-total 4)	0.8	0.5	....	N. J. State
Total B (3 plus 4)	46.1	0.5	45.1	N. Y. and N. J. States
Grand total (A plus B)	103.7	184.5	969.3	

streams at varying distances from Raritan Bay and has received partial natural treatment (dilution and oxidation) before passing into the bay.

Let us now examine the amounts of sewage entering the bay directly—because of proximity—a far more important question in so far as shellfish growing areas are concerned. From New Jersey there is no direct flow of raw sewage into the Bay. From New York there is about 1.1 m.g.d. of untreated sewage entering Princess Bay, a small arm of Raritan Bay and 44 m.g.d. Sheepshead Bay. Exactly speaking, this last discharge is not directly into Raritan Bay being at a point some distance toward the sea from a line drawn between Norton Point on Coney Island to Sandy Hook. However, as these wastes ebb and flood out of and into the bay they are brought into the discussion.

Summing up the question of raw sewage contributions, we find fairly adequate dilution available for those wastes not directly deposited in the bay; 1.1 m.g.d. discharged immediately into the bay on the New York side; and 44 m.g.d. deposited at a point on the same side sufficiently close to bay waters to have an effect on them because of tidal currents. Although this bay occupies an unfortunate position for shellfish cultivation on account of the metropolitan character of the surrounding territory, the great volume of water in it seems to afford fair protection to certain selected areas. If only a small portion of these wastes were in direct contact with the shellfish areas under consideration there would have been little purpose in this study, but dilution and other factors to be discussed force one to entertain more favorable conclusions regarding their quality.

EFFECT OF CHANNELS

As I have pointed out, the greater volume of sewage entering Raritan Bay does so through the Narrows although smaller amounts also come in from Arthur Kill and the Raritan River. Without considering certain physical factors, one might assume that all of these wastes would mix thoroughly with the entire mass of bay water. There is, without doubt, some intermingling at the edges of the flow coming through the Narrows from Upper Bay but on the whole it follows a fairly well defined path. The same is true of the discharge from Arthur Kill but not so much of that from Raritan River which tends to mix more completely with the waters in the western end of the bay.

In my opinion the two principal forces controlling these wastes and working to keep them out of New Jersey waters are the channels and the tidal currents. The Upper Harbor flows carrying the bulk of New York City's sewage tend to move out to sea through Ambrose Channel while those from Arthur Kill seem to follow the 30' channel running from the tip of Staten Island up into Princess Bay and from Seguine Point in that bay toward Sandy Hook. This tendency was observed on the waters during our traverses of the lines of sampling points and could be recognized through the movements of floating debris.

TIDAL CURRENTS

The evidence on the directions of flow secured through a study of the tidal currents in these waters is more compelling. *Special Publication* # 152 of the U. S. Coast and Geodetic Survey entitled "Tidal Current Charts—New York Harbor" gives 24 charts, each of which shows the direction and velocity of the tidal currents for its specific tidal hour at Governors Island, N. Y. The following descriptions are of those charts which produce the most proof to assist this study:

1. At low water—Southern Raritan Bay water and that within Sandy Hook is moving

to sea. Upper Bay water is, in the main, moving to sea although there is a slight tendency for it to encroach on the New York side of Raritan Bay.

2. At 1 hour after low water—Sea water is moving in, pushing the Upper Bay flow over onto the New York side of Raritan Bay to such an extent that there is a current created flowing directly from the Upper Bay across Raritan Bay in New York, around the southern end of Staten Island and up Arthur Kill to a slack point located just north of Staten Island's southern tip.

3. At 2 hours after low water—The currents at this time are much the same as described for 1 hour after low water except that the sea water has reached a point farther in Raritan Bay and slack water in Arthur Kill is up to the northwest tip of Staten Island.

4. At 3 hours after low water—The incoming tide has now reached such proportions that it cuts off the flow from Upper Bay not permitting it to cross Raritan Bay.

A normal tidal current flow is represented by the chart for 2 hours after high water, a description of which is as follows:

The flow from the Upper Bay is moving down and out toward the sea at a distance from Coney Island of about half the opening between Coney Island and Sandy Hook, while the flow from Arthur Kill is moving across Raritan Bay, confined right definitely to the northern half, on by Sandy Hook and out to sea.

What can be deduced from this information? First, that depending upon the tide, the sewage coming through the Narrows either flows smoothly out to sea with only its edges intermingling with clean water or is pushed back toward the New York shore to such an extent that it flows westward over Raritan Bay and up Arthur Kill, and second, that the flow from Arthur Kill and to some extent from Raritan River on the flood tide goes northeast into Princess Bay and then directly across Raritan Bay on the New York side and out to sea. Probably more than anything else, these tidal currents help to restrict the New York wastes to New York waters thereby protecting the waters of the New Jersey portion of Raritan Bay.

Reverting now to my summation of the quantities of raw sewage entering directly into the Bay, let us consider them in conjunction with the tidal currents. At Princess Bay, 1.1 m.g.d. is discharged directly. This small volume must be caught up in the tidal current moving from the mouth of Arthur Kill up into Princess Bay and then off toward Sandy Hook. This quantity combined with what comes out of Arthur Kill and Raritan Bay seriously affects the New York side of the bay but does not seem to spread to such an extent as to reach the bulk of the New Jersey waters. The 44 m.g.d. deposited in the vicinity of Sheepshead Bay is flooded back up through the Narrows or toward Staten Island and then ebbed out to sea. Some of it probably works over toward Princess Bay and to a minor extent in toward Sandy Hook after several ebbs and floods of the tide.

FLOAT STUDIES

The 1914 report of the Metropolitan Sewerage Commission includes a number of charts of float studies made in New York Harbor and adjacent waters. Only one chart of the group showing floats started at various points in the Upper Harbor or outside of Sandy Hook gave evidence that New York sewage might approach as close to the New Jersey side of the bay as Romer Shoal light. All others supported the theory that but little of the sewage discharged through the Narrows or along Coney Island reaches New Jersey waters in any appreciable amount.

WINDS

Tidal currents when undisturbed by other influences may be presumed to remain fairly consistent in their movements, but strong winds have been known to deflect large quantities of

water from their normal paths. What then is the history of winds in this area? For the 10 year period 1925-1935, the Weather Bureau reports that northwest winds prevailed in this vicinity during the shellfish season (September-April). For the 20 year period, 1915–1935, the average velocity of the winds was 15.2 m.p.h. which is equivalent to a moderate breeze. From the viewpoint of sewage polluted waters being pushed over from the New York side on to New Jersey shellfish areas, we have, therefore, winds from about the most favorable direction. However, the average velocity is so low that the results of this force are not disastrous although there is, without question, some measurable deleterious effect.

Having carefully examined the natural or physical factors, a survey of this kind next requires confirmatory evidence obtainable through bacteriological examinations of water samples from the area under inspection.

PLAN AND PROCEDURE IN WATER SAMPLING

Lines of sampling stations between fixed shore points are most desirable, but in a body of water such as this, such lines cannot always be had. Therefore, it was necessary, on the 5 outer lines which vary in length from 13,000 to 24,000 yards (7½ to 13½ miles), to run by compass and watch, using a boat, the speed of which had been calibrated in advance. The other 6 lines of sampling points were from fixed objects on shore which could be sighted from a moving boat. In addition, there were a few odd stations identified by objects in the water. Altogether 118 sampling stations were selected and all of them were used. Aside from days of severe weather, the sampling routine encountered no difficulties, and on our first regular run of 24,000 yards we checked on a fixed object located at the 22,000 yard point with an error of 100 yards.

The New Jersey State Department of Health conducted most of the sampling work although the writer and his assistant were present on several occasions. Sampling equipment was very simple consisting only of sterile 10 c.c. tubes plugged with cotton and a short stick on the bottom of which was a spring device to hold the tubes in position when forced into the water. The boat's speed, the watch, and the chart of stations were checked constantly by one man who was responsible for the sampling. A pilot operated the boat and a third man took the samples when so ordered. Only top water samples were taken.

From May 20 to June 22, 1935, when this work was done, 5 complete runs were made of the entire series of stations. Starting times were calculated each day to insure in the end 5 samples at each station for the following tidal conditions: (1) High tide, (2) Low tide, (3) Half flood tide, (4) Half ebb tide, (5) ¾ ebb tide. By following this scheme rather than just taking samples at times most convenient to the workers, we had at the end of the survey results which were exactly comparable. In other words, the tide intervals between samples at any one station were exactly the same as the tide intervals for samples at any other station. In so far as I know, this is the only method by which one can secure samples at the same tide intervals when a long series of stations must be covered.

BACTERIOLOGICAL LABORATORY AND PROCEDURE

A laboratory was established by the New Jersey State Department of Health at Highlands, N. J., and all samples were examined the same day they were collected by personnel of that department with a laboratory aide from the

writer's station coöperating. Media and other supplies were brought from that department's central laboratory in Trenton as needed. *Standard Methods of Water Analysis* was followed for the determination of *B. coli*. We did not plant 5 tubes of each dilution for each sample as is sometimes done in surveys of this kind. This procedure entails too much work for a field laboratory and we could have done it only at a sacrifice in volume of work. Hence, in the main, 1-10 c.c., 1-1 c.c., and 1-0.1 c.c. amounts were planted for each sample. As the interpretations were to be drawn on the basis of 1.0 c.c. tube results using those of the 10 c.c. and the 0.1 c.c. tubes as guides, this method was satisfactory.

BACTERIOLOGICAL RESULTS AND THEIR INTERPRETATION

It was also shown for each sampling station the percentage of 1 c.c. tubes positive for *B. coli*. These are the critical values which are used to supplement the conclusions reached by an examination of all other information. In this case, high results were found in the far western end of the bay and in that portion between Sandy Hook Point and Romer Shoal light, and to the northwest of Sandy Hook Point. Except for isolated cases, the bacteriological results in the remainder of the bay were quite satisfactory.

In recent years there has been considerable discussion among those engaged in sanitation activities related to shellfish as to what shall constitute a clean area for growing purposes. The *Report of the Committee on the Sanitary Control of Shellfish in the United States* in its supplementary report of 1927 treats this subject as follows:

> As to what constitutes satisfactory evidence that an area is fully protected against contamination with disease producing microorganisms, judgment in any given case should be based upon all the facts available, considering different observations not separately but in their relation to each other. Thus, the correct interpretation of bacteriological examinations depends to a considerable extent upon what is shown by sanitary inspection and *vice versa*. Hence it would be unwise to attempt to set up any specific and inflexible standards of acceptability in terms of findings on sanitary survey or bacteriological examination or both. It is our opinion, however, that on the basis of such examinations as have been outlined, areas may be classified generally as follows with respect to their fitness for the taking of shellfish for market:
>
> (1) Areas from which the taking of shellfish should *not* be permitted.
>
> (2) Areas which may be approved for the taking of shellfish without serious question. This class includes the areas which are so protected against human fecal contamination by distance from sources of such pollution, by dilution and by the time afforded for natural purification, that there is no discoverable likelihood of dangerous contamination.
>
> (3) Areas which are intermediate between the first and second class as regards exposure to and protection against fecal pollution.

The U. S. Public Health Service after having done considerable work of this character has arrived at the conclusion that generally not more than 50 per cent of the 1 c.c. tubes in an area should show the presence of *B. coli* if that area is to be used for the taking of shellfish for the market. This is not an inflexible figure and can be used only as a guide when weighing all the evidence collected. This figure is in general use today for our field work and was applied in this specific survey.

On this basis the areas pointed out above were looked upon with suspicion, and when considered in the light of the quantities of sewage coming into the waters at the mouth of Arthur Kill and through the Narrows, the movement of the tidal current back and forth across the mouth of the Narrows, and the prevailing northwest winds, it was concluded to urge the closing of an additional area adjacent to Sandy Hook Point.

In 1925, all of the New York side of the Bay was closed, and in 1934 a quarter mile strip along the New Jersey shore line. This work added to these condemned sections a triangular piece of water beginning at Sandy Hook Point and running along the channel leading to Seguine Point near Princess Bay in New York, thence along the state boundary line which passes through Romer Shoal light.

After proper action by the New Jersey authorities this area was officially closed whereupon the New York City Board of Health opened that city's markets to products from these waters with the provision that string clams be marked "For cooking purposes only."

FUTURE OF AREA

The future of this area appears brighter. In New Jersey, Keansburg and Keyport (both immediately on the bay) have been ordered to improve their sewage treatment facilities and at Keyport a new plant is being constructed; action is progressing to clean up the Shrewsbury River further; wastes contributed to Arthur Kill by New Jersey communities will be measurably reduced by new plants for the Rahway and Elizabeth valleys both of which are under construction; certain improvements in facilities in towns discharging to the Raritan River are under state and court orders; and the operation of the new Perth Amboy plant has removed the menace of a large volume of raw sewage which was formerly discharged at a point extremely close to the shellfish beds. In New York, the new Coney Island plant will alleviate the situation at Sheepshead Bay where now 44 m.g.d. of raw sewage discharges directly east of the bay; the Wards Island plant will remove about 280 m.g. from the East River daily; and the completion of the plans for treating the sewage from Staten Island in 7 more plants will materially reduce the contributed load on the waters of the Upper Bay, Kill Van Kull, and Arthur Kill.

CONCLUSION

Extension of the safe shellfish grounds in this bay, therefore, await the installation of more sewage treatment works. A continuation of the present open area depends largely upon the efficient and unceasing operation of the plants in New Jersey located on Raritan Bay and its tributaries. Consequently, as in other cases, the life of this local industry is to a large degree dependent upon municipal authorities and sewage works operators. I trust that your efforts will all be toward making it possible for this industry to grow and flourish.

Public Health for All

JUST like disease, public health does not recognize any man-made or natural barriers dividing the people or for that matter any distinction of caste, creed, or colour, so that in this respect all are for one and one for all. The whole of the human race is liable to the same diseases and establishes the brotherhood and equality of man in one respect at least and as public health is a counter measure to disease its laws apply equally to all.—D. R. Mehta, M.B., The Edinburgh Congress, *J. State Med.*, XLIV, 6 (June), 1936.

Laboratory Problems in the Control of Meningococcus Meningitis*

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OUTBREAKS of meningococcus meningitis offer adequate evidence of the futility of the control measures which have been employed, and the literature gives slight promise of the immediate development of effective control measures which can be generally applied. Carriers have commonly been considered more important in the transmission of the disease than cases, yet carrier surveys, as usually carried out, have complicated the administrative problems involved without aiding materially in control. The carrier incidence in a group may run above 35 per cent and the outbreak abate without their segregation. In other instances, the segregation of carriers, as found, has had no influence on the course of the outbreak. As a result of such observations the wholesale meningococcus carrier survey has fallen into disrepute, probably to the best interests of all concerned.

The wholesale carrier survey has, at least, served to emphasize the fact that there are many problems in the bacteriology, infection, immunity, and epidemiology of meningococcus meningitis which have not been worked out or have been ignored in routine work. The responsibility for improvement in methods of control rests squarely on the laboratory, and if any success is to be attained the laboratory worker must approach each outbreak as an applied research problem rather than with the aim of getting the largest number of carrier cultures made in the least possible time. This premise justifies this incomplete presentation of certain theoretical phases of the subject and the fragmentary observations cited as offering possibly some basis or stimulus for studies on the epidemiology of the disease.

No small part of the confusion which exists arises from attempts to evaluate observations and findings on the same basis as is used in considering the more highly communicable diseases. A meningococcus meningitis outbreak cannot be compared with a typhoid outbreak and a meningococcus carrier does not have the same epidemiological significance as a typhoid carrier. A better understanding of the problem may be obtained by a classification of communicable diseases which divides them into those of universal susceptibility and definite epidemiology and those of limited susceptibility and obscure epidemiology.

I. DISEASES OF UNIVERSAL SUSCEPTIBILITY AND DEFINITE EPIDEMIOLOGY

Typhoid fever, smallpox, mumps, and measles offer examples of diseases

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of universal susceptibility and definite epidemiology, to which, as a group, the following characteristics may be ascribed:

A. Causative organisms are aggressive invaders of the body, regardless of the severity of the symptoms produced when an invasion has been accomplished.

B. Populations are universally susceptible, unless naturally or artificially immunized.

C. Susceptibility is not related to a lowered general resistance.

D. The carrier level is relatively low in those in which carriers are known to exist.

E. Carriers are almost universally a menace.

F. Cases are usually referable to a known preceding case or carrier.

G. Clinically mild and atypical cases are much less common than in the second group.

H. Control measures are fairly well established.

II. DISEASES OF LIMITED SUSCEPTIBILITY AND OBSCURE EPIDEMIOLOGY

Meningococcus meningitis, poliomyelitis, the pneumonias, and undulant fever are examples of this group, and as a result of extensive immunization diphtheria also may possibly be included in this group. The chief characteristics of the group are:

A. Causative organisms are not aggressive invaders of the body. Virulence involves at least 2 factors: the aggressiveness of the organism as an invader, and the ability to produce severe symptoms when an invasion has been accomplished. These 2 factors are well correlated in diseases of universal susceptibility, but the correlation is not so marked among the diseases of limited susceptibility. The meningococcus is ordinarily a poor invader at best, but even the poorest invaders among the meningococci may attack with much fury when, through some combination of circumstances, an invasion has been accomplished.

B. Only a limited portion of the population is susceptible. If the intradermal skin test with meningococcus toxin, adjusted by tests on newly developed cases of meningococcus meningitis, is a reliable index, findings bear out this statement. The writer has made 626 such tests on institutional and residential populations among which cases of meningococcus meningitis had occurred. On the basis of the edema and erythema produced, 25.7 per cent were slightly susceptible and 1.5 per cent were highly susceptible. Younger groups showed a greater susceptibility than older.

C. A lowered general resistance is usually essential to an invasion by organisms of average virulence, even in the susceptible group. Case histories in meningococcus meningitis usually reveal some predisposing factor which has tended to lower the resistance of the individual. These include upper respiratory infections, otitis media, gastrointestinal upsets, extreme and prolonged fatigue, prolonged exposure to inclement weather, the excessive use of alcohol, and numerous less easily detected causes.

D. The carrier level is relatively high in diseases in which carriers are known to exist. Several instances have been reported in which the meningococcus carrier incidence exceeded 50 per cent. Glover [1] considers that when the carrier level reaches 20 per cent, the community is in danger of an outbreak of meningitis.

E. Carriers are not universally a menace. Effective meningococcus carriers are probably few in number. One error in the carrier survey has been a lack of understanding of the fact that there are epidemic, non-epidemic or sporadic, and probably saprophytic strains of the meningococcus, similar in characteristics to those reported among the pneumococci. This grouping fits in nicely with the generally accepted type classification of meningococci. The actual epidemiological basis for the classification is that phase of virulence which has to do with the aggressiveness of the organism as an invader of the

deeper tissues. Rake [2] groups meningococci on the basis of Gordon's classification:

Type I–III: Parasitic or epidemic and responsible for nearly all the large epidemics and most of the small ones.

Type II: Normally a saprophyte, frequently present in the throats of normal individuals. Can also act as a parasite and produce sporadic cases of the disease and even limited epidemics.

Other types: Saprophytes, present in the throats of normal individuals where they seem to cause no harm. Only occasionally do they cause a sporadic case of meningitis.

In general, the carriers of non-epidemic and saprophytic strains of the meningococcus are more consistently positive on repeated culture and the condition is of longer duration than is the case with carriers of epidemic strains. The non-epidemic and saprophytic strains are more easily grown than are the epidemic strains. It seems likely, then, that most of the carriers detected in routine carrier surveys have been of no epidemiological significance.

The dangerous carrier of epidemic strains is frequently of the chronic, intermittent type, capable of transmitting massive infections at times but with intervals when the meningococcus is apparently not present in the superficial tissues of the posterior nasopharynx. An individual may be able to resist the attack of a few poor invaders but succumb to a large number of these same organisms when his general resistance has been lowered by some predisposing factor. Limited studies on chronic, intermittent carriers of epidemic strains have shown that individuals may yield practically pure cultures of meningococci at times, while at other times few or none are found.

This intermittent character of effective carriers is one factor which contributes to the baffling epidemiological picture often observed and accounts, in some instances at least, for the failure of the carrier survey. The writer [3] has reported a carrier of Gordon Type I–III meningococci who appeared to have been responsible for 5 cases in an institution, distributed over a period of about 9 months and who continued to give an occasional positive culture for 5 months more. Rake [4] has reported carriers of this sort in which repeated cultures were negative for periods of several months, after which positive cultures were again obtained. The unreliability of the usual regulations for the release of carriers becomes apparent in the light of such findings.

Since the inference has been made that the technic commonly used in carrier surveys may not always detect the dangerous carriers, a word regarding technic may not be amiss. The technic which gives some assurance of isolating and identifying the less easily cultivated epidemic strains of the meningococcus, lends itself better to an intensive and prolonged study of a carefully selected group than to a single culturing of an extensive group selected by administrative order or in a haphazard manner. The writer has set an arbitrary, maximum limit of 40 cultures per day when working alone in the field, and this may be too high for best results. Space does not permit a detailed description of the technic involved, and the reader is referred to the excellent outline of the subject by Branham [5] for further information. Certain points will bear emphasis, however: (1) There are no reliable shortcuts in technic, such as the use of Olitsky's medium; (2) the identification of freshly isolated strains of the meningococcus cannot always be safely based on agglutination reactions, to the exclusion of carbohydrate fermentation; (3) typings must be made, without exception, if the findings are to be of any epidemiological significance.

F. Cases are not usually referable to a preceding case or carrier, as found. This statement holds true in the ma-

jority of meningococcus meningitis outbreaks. Painstaking and detailed epidemiological investigations have led on several occasions to the selection of a small group which, upon repeated culturing, has yielded a chronic intermittent carrier who fitted into the epidemiological picture and whose removal coincided with the end of the outbreak.

G. Clinically mild and atypical cases are very common and may exceed the clinically typical cases in number. Ordinarily only meningococcus infections involving the meninges are recognized; yet there is considerable evidence that a meningococcus septicemia always precedes the meningitis, and meningococcus septicemias without meningeal involvement have been repeatedly reported. Meningococcus meningitis following sinus involvement occurs frequently enough to suggest that the meningococcus may be the causative organism in many sinus infections, rather than a secondary invader. Upper respiratory infections are also numerous during an outbreak of meningococcus meningitis. Are these the usual run of respiratory infections or are these individuals suffering from a mild form of local meningococcus infection as has been suggested by Mink [6] and others.

Certainly meningococcus infections without meningeal involvement offer greater opportunities for the dissemination of the parasitic types of organism than cases of meningitis, and considerable study may well be devoted to the problem.

H. Control measures are not as well established as in the group of diseases of universal susceptibility. The measures used with the first group of diseases are employed as a matter of form, but the special measures which have proved slightly more effective are those which contribute to the maintenance of a high level of general resistance in the individual.

These characteristics of diseases of limited susceptibility and obscure epidemiology cast some light on the problems involved. Outbreaks will be cited as illustrative of some of these points and extensive observations along these lines may give some information of value in the control of the disease.

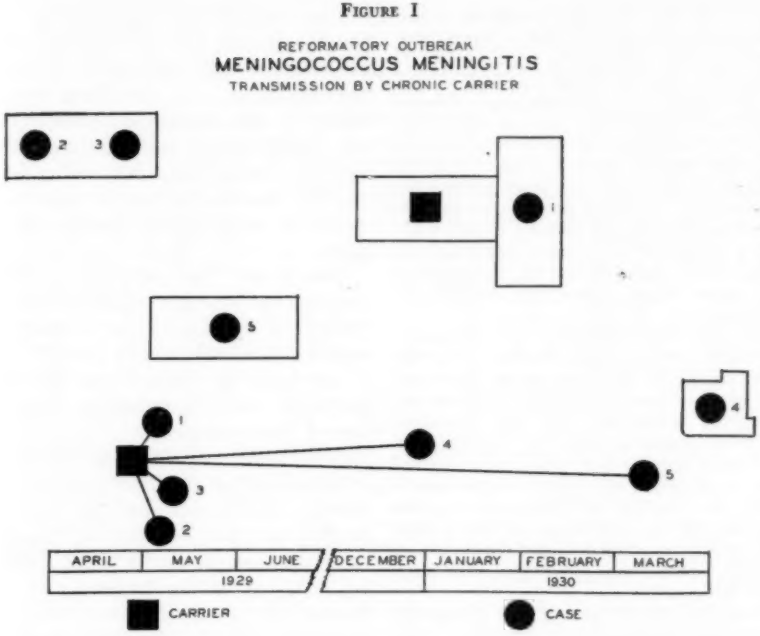
Some mention should be made of the use of meningococcus toxin. The production of meningococcus toxin by Ferry, Norton, and Steele [7] has introduced the possibility of its use for intradermal skin tests, as an index of immunity, and for artificial immunization. Kuhns [8] and the writer have both done some work along these lines but extensive use and prolonged observation will be necessary before definite conclusions may be drawn.

The almost universal observation of a lowered general resistance as a predisposing factor for the development of cases of meningococcus meningitis, involving organisms of average virulence, suggests that the intradermal skin test may only give an index of one of several factors concerned in susceptibility to the disease.

Limited experience with the use of raw meningococcus toxin as an immunizing agent also indicates that the amount which can be injected without causing severe reactions is not sufficient to produce as high a degree of immunity against the intradermal skin test as is desirable. There are also some observations that suggest that the use of meningococcus toxin may only immunize against certain minor clinical symptoms, similar to what has been alleged in connection with the immunization against scarlet fever with streptococcus toxin.

These statements are not intended as a criticism but as a caution against over-enthusiasm and inadequately supported claims. The only communicable diseases which may really be considered as controllable are those for which an easily used, active immunization has

FIGURE I



been developed. For meningococcus meningitis, whether this be meningococcus toxin, an autolyzed meningococcus filtrate or some other product, studies aimed at the production of an effective agent for active immunization seem to offer the greatest promise of successful control of the disease.

The following outbreaks of meningococcus meningitis serve to emphasize certain of the characteristics of the disease which have been outlined above.

1. REFORMATORY OUTBREAK

This outbreak occurred in a state reformatory with about 650 inmates and 50 officers and their families.

Figure I shows both the geographical and chronological distribution of cases. Five cases occurred, 3 among officers (Cases 1, 4, and 5) from 35 to 67 years of age, and 2 among inmates (Cases 2 and 3) under 21 years of age. Wholesale carrier surveys, made after the development of both the 3rd and 4th cases, were of no value in control.

The organism involved in the last 2 cases was identified as a Gordon Type I–III meningococcus and it was assumed that there was probably a chronic carrier of this organism either among the officers or their families, since 3 of the 5 cases had been officers. The next culturing was limited to officers, their families, and "H" Company, the last case having been the captain in charge of "H" Company.

No carriers of Type I–III meningococci were found among the officers or their families, but one member of "H" Company, who had given negative cultures on both the wholesale carrier surveys, gave practically a pure culture of meningococcus which could not be distinguished from those isolated from the spinal fluid of the last 2 cases. The relation of this carrier to the cases was as follows:

April 25, 1929—Carrier committed to the reformatory, assigned to "H" Company and detailed to the rock quarry force.

May 4, 1929—Case 1 (the captain in charge of the rock quarry force) developed meningococcus meningitis. He was a robust individual, apparently in the best of health, who had returned from a week's spree on April 27, 2 days after the carrier entered the reformatory. In the 2 or 3 days after his return to duty, he had helped the carrier lift heavy rocks. The explosive exhalation of breath while under the strain of this work had given ample opportunity for droplet infection.

May 8, 1929—Case 2 ("G" Company) developed meningococcus meningitis. He was also assigned to the rock quarry force and had been a friend of the carrier before entering the reformatory. He was an undernourished individual who had contracted a severe cold about 3 days prior to the appearance of meningeal symptoms. Ample opportunity for infection was given both at work and through the practice of passing a pipe from mouth to mouth while on the recreation grounds. Case 3 also participated with these 2 in this practice.

May 13, 1929—Case 3 ("G" Company) developed meningococcus meningitis. Occupied the bunk next to Case 2 in quarters and was a close associate of both the carrier and Case 2. He was undernourished, anemic, and was noted for repeated admittances to the infirmary on diagnosis of hysteria.

December 26, 1929—Case 4 (Superintendent of the reformatory) developed meningococcus meningitis. He was an obese, elderly individual who had lost 20 lb. in the month prior to the development of meningitis as a result of a severe, protracted cold and the worries incident to assuming management of the reformatory.

The carrier had escaped from the institution and upon his return was required to report in person to the superintendent daily. The superintendent made it a practice to get extremely close to those with whom he conversed, thus increasing the opportunities for droplet infection. He developed the disease 7 days after his first interview with the carrier.

March 7, 1930—Case 5 (the captain in charge of "H" Company) developed meningococcus meningitis. He had had a severe gastrointestinal upset a few days before. He probably acquired his infection when he forced the carrier against the wall and choked him, in quelling a disturbance in quarters 6 days prior to the onset of his illness.

This carrier was cultured at frequent intervals over 5 months. The majority of cultures failed to show meningococcus. An occasional culture showed a few meningococcus colonies and twice almost pure cultures were obtained, establishing his status as a chronic, intermittent carrier capable at times of transmitting massive infections.

The writer[8] has reported a similar outbreak in a state penitentiary, involving a Gordon Type I meningococcus. Wholesale carrier surveys were of no value in control and the geographical and chronological distribution of cases was similar to the reformatory outbreak. Epidemiological studies revealed that all the cases had occurred among skilled men in the building trades who worked together on construction jobs about the prison. Careful culturing of the remainder of this limited group revealed a chronic, intermittent carrier who was quartered in a cell house where no cases of the disease had developed. As with the reformatory outbreak, the institution was free from meningococcus meningitis for a number of years following the removal of the chronic carrier.

These outbreaks emphasize the following points:

A. Carriers of sporadic and saprophytic types of the meningococcus are of no epidemiological significance in outbreaks.

B. The dangerous carrier is of the chronic, intermittent type who is harboring an epidemic strain of the organism and who is capable of transmitting massive infections at times.

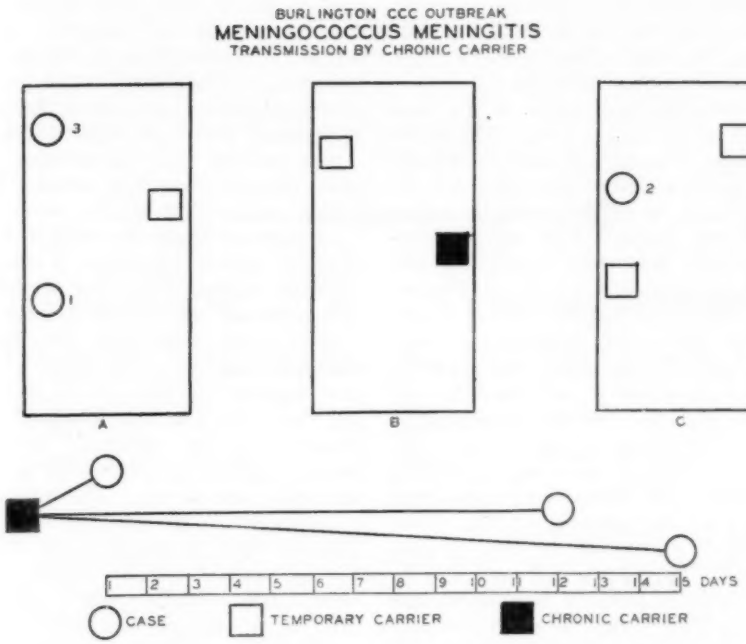
C. A lowered general resistance of the individual, coupled with a massive infection is essential for a successful invasion by meningococci of average aggressiveness.

D. Careful epidemiological studies may be of value in selecting the group which includes the effective carrier.

2. BURLINGTON CCC OUTBREAK

This outbreak occurred in a Civilian Conservation Corps Camp at Burling-

FIGURE II



ton, Kan., in November and December, 1935. The personnel of the camp included over 200 enrollees, officers and supervisors who were quartered in cantonment type barracks.

Figure II shows the chronological distribution of cases and their location in barracks. Three cases occurred at intervals of 12 and 3 days, respectively, among enrollees. Two cases (Cases 1 and 3) were quartered in Barrack A, and 1 case (Case 2) in Barrack C. Typings were not entirely satisfactory because of broad agglutinations and absorptions, but somewhat better results were obtained with Type III sera than with other types and the organism was considered an epidemic type.

Preliminary epidemiological investigations gave no significant leads and it was decided to culture the entire camp personnel in groups of a size in which it would not be necessary to sacrifice accuracy of technic to speed. Thirty-one, or 14.2 per cent, of the 217 persons cultured were found to be meningococcus carriers.

This was the first outbreak handled by the writer in which he had the courage of his convictions as regards the carriers of epidemic and non-epidemic strains of the meningococcus. Of the 31 carriers identified, 26 yielded non-epidemic or saprophytic strains and 5 epidemic strains. Only the 5 carriers of epidemic strains were isolated. One of these 5 carriers, quartered in Barrack B where no cases of the disease had developed, proved to be a chronic, intermittent carrier of an organism which closely resembled those recovered

from 2 cases. He had been closely associated with the 2 patients either in tussles or contests of strength and skill prior to their illness, which may account for their infection.

The writer had charge of this outbreak which Kuhns [8] has cited as an example of successful control through the use of meningococcus toxin for immunization, in which opinion the writer does not concur. Skin tests for susceptibility were read jointly by the camp surgeon and the writer on December 5, the day that the carriers of epidemic strains of meningococci were isolated. No new cases developed between December 5 and December 20, when the 4th dose of meningococcus toxin was given to the 89 skin test reactors among the camp personnel. Certainly the toxin cannot be given credit for the prevention during a considerable portion of the immunization period. This absence of cases may be due to the vagaries of the epidemiology of the disease, but the whole outbreak so closely resembles those of the reformatory and penitentiary mentioned above, as well as others in the writer's experience, where removal of chronic intermittent carriers of epidemic types of meningococci has coincided with the end of the outbreak, that this fact cannot be ignored.

3. SPEARVILLE CARRIER

The history of this carrier presents some interesting possibilities both as to the duration of the chronic carrier state and the production of cases by carriers of non-epidemic or sporadic strains of the organism.

The mother of a family of 11 children, residing on a large wheat farm, had meningococcus meningitis in 1928 and recovered. Since that time, 3 of her 11 children have developed the disease: 1 case, fatal, in February, 1930, 1 which recovered, March, 1930, and 1 which recovered in March, 1936.

Cultures made early in June, 1936, revealed the fact that both the mother and her 3 year old daughter were carrying a Gordon Type II (sporadic) meningococcus which had rather broad cross-agglutination and absorption reactions with both Types I and III sera.

The number and distribution of cases suggests that this woman has been a chronic, intermittent carrier of a non-epidemic strain of meningococcus since her recovery in 1928. A culture made in August, 1936, was negative, and additional studies will be made.

Skin tests made with polyvalent meningococcus toxin in June, 1936, gave negative reactions on the mother and the 2 children who have had the disease. Of the remainder of the family, 5 gave 1 + skin tests, 1 a 2 + test and 1 a 4 + test. The 4 + test is comparable to the skin test susceptibility of newly developed cases of the meningococcus meningitis which have been tested. These results suggest that other factors than skin test susceptibility are more important than the skin test in the transmission of the disease.

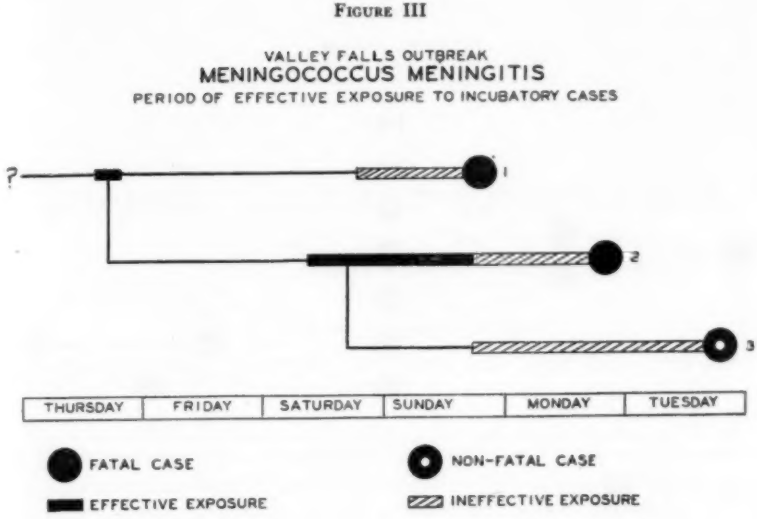
Transmission of meningococcus meningitis by clinical cases of the disease has not appeared to be as common as transmission by carriers. The following outbreaks illustrate the usual and exceptionally rare types of transmission by cases:

4. VALLEY FALLS OUTBREAK

Three cases developed on successive days, 2 were high school students and the 3rd a sister of the 2nd patient, was a grade school pupil (Figure III).

The source of infection in the first case is not known, but in view of the rather definite incubation period in Cases 2 and 3, the patient probably acquired his infection either Wednesday night or Thursday morning. Case 2 acquired his infection from Case 1 while returning from a basket ball game

FIGURE III



in an open truck. The 2 boys became chilly during the 20 mile trip and put their heads together under a blanket, giving ample opportunity for transference of the organism from Case 1, then in the early incubation stage. Patient 3 was the sister of patient 2 and was at home with her brother during the early stages of his incubation period. A culture of Case 2 taken a few hours before the development of clinical symptoms failed to show the presence of meningococci.

Each of these patients was in contact with several children in their respective families during that stage of the incubation period just prior to the development of clinical symptoms and no cases resulted, while exposures during the early stages of the incubation period were productive of cases. All of the children exposed were suffering from severe colds with laryngeal involvement, which would be considered a predisposing factor to infection, yet cultures taken shortly after the development of cases showed no meningococci.

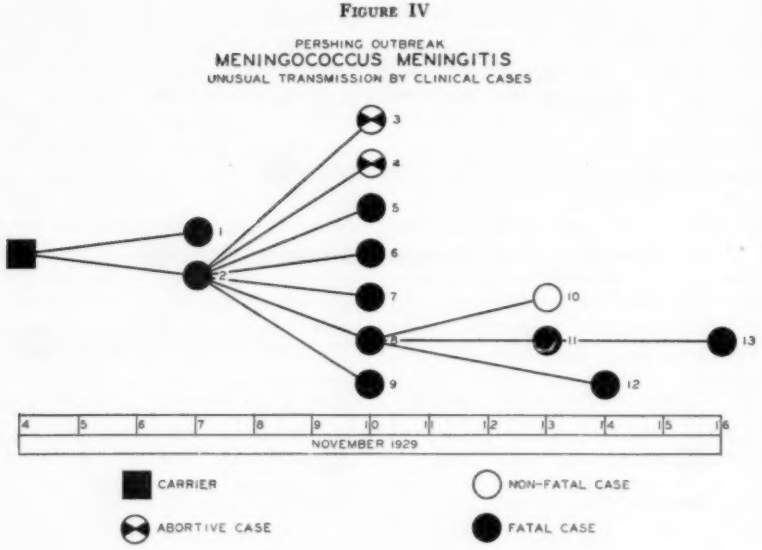
This illustrates the common observation that clinical cases are most infectious during the first 24 or 36 hours of the incubation period when large numbers of meningococci are present in the posterior nasopharynx and massive infections can be transmitted. In most instances the organisms enter the deeper tissues and disappear from the nasopharynx before the appearance of clinical symptoms, and the case is no longer infectious.

5. PERSHING OUTBREAK

This has been reported [3] but is briefly presented because it graphically shows the rather unusual transmission of the disease by fulminating cases after clinical symptoms have developed. This outbreak was due to a Gordon Type I organism of exceptional aggressiveness as an invader.

Figure IV shows the chronological grouping of cases and sources of infection. Most of the cases were persons of middle age, the incubation period was 3 days, and most of the patients died in from 11 to 14 hours after the appearance of the initial symptoms. A total

FIGURE IV



of 23 persons were exposed to these cases during the clinical stages, 11 of whom developed the disease.

While such effective transmission will not ordinarily be encountered, the possibility must be considered in fulminating outbreaks of the disease. While such outbreaks are spectacular and terrifying, they offer a much simpler problem of control than the usual type.

SUMMARY

The theories presented and outbreaks cited cast some light on the problems involved in the transmission of meningococcus meningitis and somewhat similar studies may be of material assistance in the development of methods of control of the disease.

Studies dealing with the following problems are suggested:

A. Epidemiological significance of what have been termed epidemic, non-epidemic, and saprophytic strains of the meningococcus.

B. The prevalence and epidemiological significance of meningococcus infections other than meningitis.

C. The epidemiological relationships of chronic, intermittent carriers to sporadic cases and outbreaks of meningococcus meningitis.

D. Improvement in the technic of culturing meningococcus carriers.

E. Predisposing factors to meningococcus infection.

F. The development of reliable and easily applied tests for immunity to meningococcus meningitis as well as effective methods of immunization.

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Interstate Sanitation Compact and Its Implications*

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ALTHOUGH the New York State Department of Health had long realized that it was imperative to protect our streams from pollution in order to conserve the public water supplies derived from surface sources, no definite action was taken by the state to control stream pollution until the so-called "anti-pollution" law was enacted in 1903. By that time nearly all of our large rivers and many of our small streams had become seriously polluted, only 3 relatively small municipalities having installed sewage treatment plants. The New York law is similar to the anti-pollution laws of a number of other states, and in general prohibits the discharge of sewage and industrial wastes into any of the waters of the state without the approval of the State Commissioner of Health. However, municipalities and industrial plants which were discharging sewage and wastes prior to that time were exempted from the operation of the law.

The State Department of Health has had many obstacles to overcome in its efforts to clean up our streams. Municipalities and industrial concerns had come to look upon the discharge of untreated sewage and wastes into streams as a vested right and seemed to resent any interference with this practice. The constitutional limitations on the bonding power of municipalities and the high cost of the interception and treatment of sewage has delayed our campaign against stream pollution. Experience in New York indicates that the cost of providing for the interception and treatment of sewage of municipalities varies from $5 to as high as $100 per capita with an average of $25. The cost of such work for the City of New York alone is estimated at between $243,000,000 and $378,000,000, depending upon the degree of treatment provided.

Although municipal officials usually realize the necessity for providing sewage treatment, taxpayers are very often loath to vote favorably on propositions to bond municipalities for such projects. They feel that sewage treatment is primarily for the benefit of downstream communities and that neither they nor the community itself will receive any direct benefit therefrom.

Although the department has required the installation of sewage treatment works in connection with all new

* To be read at a Joint Session of the Conference of State Sanitary Engineers and the Public Health Engineering Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 20, 1936.

sewer systems constructed since the anti-pollution law was enacted in 1903, and as a result there are now 209 sewage treatment plants serving a population of nearly 2,500,000, the sewage from a population considerably greater than the entire population of the state in 1903 is being discharged without any treatment into the waters of the state. This is due in a large measure to the phenomenal growth of New York City, which has a population greater than that of the entire state in 1900, but treats only a small portion of its sewage.

The most important and far reaching coöperative effort so far undertaken to control pollution is the Interstate Sanitation Compact that has been drawn up by the states of New York, New Jersey, and Connecticut. The rapidly increasing pollution of the tidal waters in the New York metropolitan area has been a matter of grave concern to the state and local health departments of these states. Although the problem of abating this pollution has been studied for a great many years by various commissions, only a relatively small percentage of the sewage in the New York metropolitan area is receiving any treatment at present. The sewage treatment plants installed so far have been constructed primarily to give local relief where the conditions were particularly objectionable. The volume of sewage so treated has had no appreciable effect on the general problem and has not kept pace with the tremendous growth of this area.

Aside from the high cost of interception and treatment of the sewage for this thickly populated metropolitan area the State Departments of Health of the 3 states involved appear to have been somewhat reluctant to require the municipalities under their jurisdiction to install sewage treatment works, realizing that unless all of the states did likewise their efforts would be nullified to a large extent. Furthermore, before the Interstate Sanitation Compact was consummated there were no uniform or accepted standards to act as a guide as to the degree of treatment to provide.

Some conception of the magnitude of the problem may be gained from the fact that nearly 10 per cent of the entire population of the United States is concentrated in the New York metropolitan area and that the sewage from over 12,000,000 persons, amounting to over 1,300,000,000 gallons, and the trade wastes from some 100,000 industries are discharged daily into the coastal and harbor waters of this district. This quantity of sewage has for years exceeded the assimilating power of these waters and has resulted in the entire depletion of the dissolved oxygen content of the water in a number of areas during the summer months. Of the total population contributing sewage, about 74 per cent are in New York State, 20 per cent in New Jersey, and about 6 per cent in Connecticut.

It has been the general belief that the sewage and wastes discharged into the waters in New York Harbor and its tributaries are promptly carried out to sea by the large quantities of pure water of the Hudson River, Long Island Sound, and the Atlantic Ocean. The fact is that the sewage in the harbor drifts back and forth for days by the action of the tides and that less than 10 per cent of the tidal flow at the Narrows consists of new sea water.

This enormous quantity of sewage and industrial wastes discharged daily carries hundreds of thousands of tons of sewage solids into the surrounding waters each year, about half of which is putrescible organic matter. This material is deposited in the form of putrescible sludge in the steamship slips and channels of the harbor. Extensive dredging operations have to be carried on each year in order to

free the slips and channels of this sludge and other deposits.

Unless this pollution is checked it will be only a matter of time before it will render impossible the enjoyment of the great public beaches built at a cost of millions of dollars and giving recreation and healthful enjoyment to millions of people. Already a number of beaches have been closed to bathing by the New York City Department of Health.

The effect of this pollution upon fish life has been marked. There is practically no fish life existing in certain areas of the district, due largely to the reduction of the dissolved oxygen content of the water. The economic loss due to this condition is hard to estimate. Some of the most productive shellfish areas in the New York metropolitan area have been condemned for shellfish cultivation. According to data furnished by the Conservation Department of New York State there has been a reduction in the number of acres of tidal waters under lease of franchise in this area for the propagation of oysters from 24,400 acres in 1915 to 6,700 acres in 1935. Furthermore, the cultivation of shellfish is prohibited in 81,000 acres of land under water in this district. This condition has resulted not only in a tremendous loss to the shellfish industry but also a loss of revenue to the State of New York.

The pollution of bathing beaches and shellfish beds finally aroused the public and certain metropolitan newspapers to a realization of the seriousness of the pollution problem, and resulted in the calling of a number of conferences in New York City during 1930 to consider ways and means of correcting these conditions. These conferences were presided over by Senator Royal S Copeland, formerly Commissioner of Health of New York City, and were attended by representatives of federal, state, and municipal authorities, as well as other interested citizens.

As a result the 3 states of New York, New Jersey, and Connecticut early in 1931 passed laws creating a temporary Tri-State Treaty Commission directed to

> . . . formulate the terms of a treaty between the 3 states and the federal government in the matter of the prevention and eradication of contamination and pollution of the natural waters flowing or situated between the states of New York and New Jersey or the states of New York and Connecticut and the natural waterways of said states flowing to any such natural waterways and the legislation, state and federal, necessary to make such recommendations effective.

The Tri-State Commission appointed by the governors of the 3 states was non-partisan and was composed of men whose actions were governed solely by consideration of the best public interest. They were assisted by the best engineering and expert talent of the states involved, and the Compact as finally evolved stands out as one of the great achievements in interstate coöperation.

The first meeting of the Tri-State Treaty Commission was held in New York City on June 3, 1931. A number of sub-committees, including the Committee of Engineering and Research, of which the writer was a member, were organized. It was the duty of this committee to fix the areas to be included within the proposed Interstate Sanitation District and to draw up standards of purity of sewage effluent and of the waters within the treaty area.

The legislation legalizing the Compact and standards in so far as New York State is concerned was passed unanimously during the closing days of the 1932 legislature and signed by Governor Roosevelt on March 30, 1932. Although bills legalizing the Compact were introduced in the New Jersey legislature each year since that time, it was not until July, 1935, that the necessary legislation was passed and

signed by Governor Hoffman. The laws passed by New Jersey, however, differed in a number of essential features from those passed by New York in 1932, so that it was necessary for New York to enact identical laws in order to put the Compact into effect in so far as New York and New Jersey are concerned. Such legislation was introduced on January 2 of this year, passed by the legislature on January 14, and signed by Governor Lehman on January 17, 1936. The Compact was approved by a joint resolution of Congress on August 27, 1935. The Compact so far as Connecticut is concerned will become effective whenever that state passes laws identical with those of the other 2 states. The Interstate Sanitation Commission, comprising members from these 2 states, has organized and is now functioning.

Stated in simple terms, the Compact contemplates the elimination of offensive pollution, the making of all beaches in the region safe for bathing and recreational purposes, and the return to shellfish culture of many of the areas now condemned. In the words of the Compact:

> Each of the signatory states pledges each to the other faithful coöperation in the control of future pollution and agrees to provide for the abatement of existing pollution in the tidal and coastal waters in the adjacent portions of the signatory states defined herein as coming within the district, and consistent with such object, to enact adequate legislation which will enable each of the signatory states to put and maintain the waters thereof in a satisfactory sanitary condition, and particularly to protect public health; to render safe such waters as are now used or may later become available for bathing and recreational purposes; to abate and eliminate such pollution as becomes obnoxious or causes a nuisance; to permit the maintenance of major fish life, shellfish and marine life in waters now available or that may by practicable means be made available for the development of such fish, shellfish or marine life; to prevent oil, grease or solids from being carried on the surface of the water; to prevent the formation of sludge deposits along the shores or in the waterways; and with the fulfillment of these objectives to abate and avoid incurring unnecessary economic loss by safeguarding the rights of the public in its varied legitimate uses of the waters of the district.

The area included within the Interstate Sanitation District covered by the Compact comprises the tidal waters in the Metropolitan District, including Newark Bay, Upper and Lower New York Bays, Sandy Hook Bay, and Raritan Bay, the Hudson River north to the northerly boundary line of Rockland and Westchester Counties; Long Island Sound as far east as the easterly side of New Haven Harbor at Morgan Point in Connecticut and the easterly side of Port Jefferson Harbor on Long Island; and the Atlantic Ocean to the easterly side of Fire Island Inlet on Long Island.

With respect to the standards of purity, the Compact provides

> . . . that where tidal waters are used for such varied purposes as bathing, navigation, shellfish culture, the development of fish life, and the disposal of wastes, no single standard of purity is practicable in all parts of the district.

The waters, therefore, were divided into 2 general classes—

> Class A waters in which the designated water areas are expected to be used primarily for recreational purposes, shellfish culture, and the development of fish life.
>
> Class B waters in which the designated water areas are not expected to be used primarily for recreational purposes, shellfish culture, or the development of fish life.

After a careful study and consideration of the local factors involved, the following minimum standards were adopted by the Tri-State Commission:

> 1. All sewage discharged or permitted to flow into Class "A" waters of the district shall first have been so treated as:
>
> a. To remove all floating solids and at least 60 per cent of the suspended solids.
>
> b. To effect a reduction of organisms of the *B. coli* group (intestinal bacilli) so that the probable number of such organisms shall not exceed 1 per c.c. in more than 50 per cent of

the samples of sewage effluent, provided, however, that in the case of discharge into waters used primarily for bathing this bacterial standard need not be required except during the bathing season.

c. To effect a reduction in the oxygen demand of the sewage effluent sufficient to maintain an average dissolved oxygen content in the tidal waters of the district and in the general vicinity of the point of discharge of the sewage in those waters, at a depth of about 5 feet below the surface, of not less than 50 per cent saturation during any week of the year.

2. All sewage discharged or permitted to flow into Class "B" waters of the district shall first have been so treated as:

a. To remove all floating solids and at least 10 per cent of the suspended solids, or such additional percentage as may by reason of local conditions be necessary to avoid the formation of sludge deposits in Class "B" waters of the district.

b. To effect a reduction in the oxygen demand of the sewage effluent sufficient to maintain an average dissolved oxygen content in the tidal waters of the district and in the general vicinity of the point of discharge of the sewage into those waters, at a depth of about 5 feet below the surface, or not less than 30 per cent saturation during any week of the year.

The Compact also provides that all sewage discharged or permitted to flow into any stream tributary to the tidal waters of the district shall be so treated if necessary as to maintain such stream in a sanitary condition at least equal to the requirements laid down for the tidal waters into which it flows.

The Compact sets up a permanent Inter-State Sanitation Commission with authority to make investigations, conduct hearings, and prescribe by orders a reasonable date on or before which each municipality shall treat its sewage in accordance with the standards specified in the Compact. It also provides that nothing in it shall be construed to repeal or prevent the enactment of any legislation or the enforcement of any requirements of any signatory state imposing additional conditions or restrictions to lessen or prevent the pollution of water within its jurisdiction and requires that the Interstate Commission shall coöperate with the respective state authorities having jurisdiction over stream pollution with a view to coordinating their activities and securing the most satisfactory results. For this purpose the Interstate Commission is authorized to prepare a general plan of the most practical and economical method of securing conformity with the Compact and submit such plan to the governor and the legislature of each state and to the state agencies having charge of sewage problems in the respective states.

It should be noted that the standards stipulate the results to be obtained, leaving it to the states and municipalities involved as to how the results shall be reached. The minimum standards adopted, however, can in most cases be met by simple and well known methods of sewage treatment. The tests required to determine if the standards with respect to the sewage effluent or the receiving waters are complied with are also simple and lend themselves to easy determination.

It is felt that the standards for Class A waters are sufficiently high to protect public health and fish life. In fact the *B. coli* standard for sewage effluent is only slightly less stringent than the minimum standards for swimming pools prescribed by the New York State Sanitary Code and are more stringent than the minimum requirements for bathing beaches of New York City.

If the standards set up for Class B waters are met, visible solids of recognizable sewage origin will be removed and no public nuisance or menace to health will be created in such waters. In fact, odor nuisances are not created so long as the dissolved oxygen is not depleted. If it had not been considered desirable to protect fish life a lower dissolved oxygen content would have been permissible.

The fact that shad are still able to

penetrate the pollution barrier of the waters in the metropolitan area and reach the spawning grounds in the Hudson River at the Kingston flats 80 miles above New York Harbor every year under the present low oxygen content of these waters seems to be conclusive evidence that 30 per cent saturation should not be inimicable to shad. Furthermore, if the dissolved oxygen in the vicinity of the outlet from disposal plants does not fall below 30 per cent, the dissolved oxygen in the main body of the water will be considerably greater.

It is believed that if the Compact is faithfully carried out by the states involved, it will expedite the cleaning up of the tidal waters in the metropolitan area; will protect public health and the bathing beaches used by millions of bathers each year; and will return to shellfish culture many of the areas now condemned.

Although the health departments of a number of states have entered into agreements to control the pollution of interstate streams, this is the first time that legal representatives of 3 sovereign states have actually drawn up a compact pledging the abatement of the pollution of interstate waters. The ratification of this Compact should have far reaching effect on the control of stream pollution not only in the states involved but also in other states, which may have similar problems, and should give impetus to the battle for the conservation of our streams and waterways, which constitute one of our most valuable natural resources.

This Compact has already created considerable interest, and the results produced by its enforcement will be watched keenly by state officials charged with the duty of controlling stream pollution. It is probable that other states having similar problems will follow the example set by New York, New Jersey, and Connecticut. The consummation of interstate pollution compacts, however, is apt to be a slow process. It required nearly 5 years to have the Compact under consideration ratified. It would probably have taken considerably longer had it not been for the seriousness of the pollution which threatened the closing of bathing beaches used for the healthful recreation of millions of people each year in the metropolitan area and the destruction of millions of dollars worth of shore property.

There is a growing feeling among state health officials that the problem of controlling stream pollution is too big for the states to handle alone and there is an increasing demand for federal coöperation in the control of stream pollution and for federal aid in financing sewage disposal projects, especially where interstate streams and international boundary waters are involved. This is substantially the conclusion reached by the Special Advisory Committee on Water Pollution in its report to the National Resources Committee dated May 3, 1935. This committee recommended in part:

1. That powers and funds be granted to an appropriate federal agency to institute a coöperative program of investigation with legally constituted state agencies for such special studies as appear desirable, and particularly for the development of appropriate standards for water use and control.

2. That in order to stimulate the construction of pollution abatement works, funds for the purpose be made available by the federal government to local public and private agencies on a grant-in-aid or loan basis.

Although New York is one of the 8 states which have fairly satisfactory anti-pollution laws, trained personnel, and reasonably adequate funds for control of stream pollution, the progress made in the elimination of stream pollution was far from satisfactory until federal aid was made available for the financing of sewerage projects. This is evident when we consider the fact that

the population served by sewage treatment plants under construction or authorized with federal aid during the past 3 years is greater than the population served by all the treatment plants constructed between 1903 and 1933.

Considering the enormous funds that all of the municipalities in the state have expended for home and work relief during the past 4 years, very few, if any, will be able to undertake costly non-liquidating projects of this kind without federal aid.

In my opinion very few new sewage treatment plants will be constructed in New York State outside of the New York metropolitan area during the next 10 years unless such aid is provided, and I believe that the same will be true in the other states of the Union. Whatever our opinion may be regarding federal aid in financing local projects, the fact remains that unless such aid is forthcoming in the form of loans or grants there will be little progress in the elimination of stream pollution in the United States for a considerable time to come.

A Menace to Health

OBESITY, seldom in itself a serious health problem, seems to be a matter of great concern to many. Far too many of the obese seem willing to "try anything once" that offers an easy way to reduce weight. The great number of proprietary "fat reducers" offered to the public gives eloquent testimony of this.

During the war those engaged in the manufacture of explosives suffered much from various poisonings. It was noted that those exposed to dinitrophenol when poisoned, in addition to other symptoms, lost weight remarkably. In recent years an effort was made to use this chemical in a "safe" dosage, yet in sufficient amount to reduce weight.

The experience of the past two or three years should be enough to prove to the profession that it is very doubtful if there is any such thing as a "safe" dosage for this dangerous drug. The dangers attendant upon its use, even in the hands of physicians, are so great that its uncontrolled sale to the laity seems actually criminal. Canada has forbidden its sale except on a physician's prescription. Its sale is similarly restricted in England. Germany has issued official warnings as to its use. But in this country, if not "misbranded," it seems difficult to control its sale. It *will* accomplish reduction in weight, so technical "misbranding" is hard to prove. In Cleveland, only by mutual agreement among pharmacists, probably largely to protect themselves from possible damage suits, has sale of this drug in proprietary form been stopped. The Council on Pharmacy and Chemistry of the A.M.A. a year ago refused to include this drug in the N.N.R. for ample reasons given in its report.[1] . . .

The moral? Even if we have no law which can be invoked to protect the public in such cases as this, we owe it to ourselves as physicians to do all in our power to safeguard our patients from exposure to the hazards involved in the use of such dangerous drugs of such questionable value.—A. G. Cranch. *Bull. Acad. Med.* Cleveland, 10, 9 (Sept.), 1936.

REFERENCE

1. *J.A.M.A.*, 105:31 (July 6), 1935.

Need for Training Facilities for Public Health Personnel in the Western States*

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THE demand for personnel trained in the field of public health has seen a steady growth since the early part of the present century. Among the public health movements inaugurated during the first two decades of the century and which played important rôles in the development of the public health field as we now know it, may be mentioned the nation-wide fight against tuberculosis inaugurated by the National Tuberculosis Association; the inauguration of community nursing service by the American Red Cross; the hookworm campaigns carried out throughout the south by the Rockefeller Foundation, and studies and demonstrations in rural sanitation carried out by the U. S. Public Health Service with the view of controlling typhoid fever and kindred diseases through the improvement of environmental sanitation. Also, the conduct of mosquito eradication programs in the prevention of yellow fever and malaria may be mentioned as individually conducted public health programs to prevent specific diseases. Each of these individually conducted programs served an important part in bringing the people of the country to realize that public health is something which no progressive community should be without and without which no community can be expected to continue to progress.

With this realization on the part of the public there developed a new era in health administrative practice. Appropriations for state health departments increased to provide for the maintenance of sanitary engineering service to include the development of safe water supplies, the installation of sanitary sewerage systems, the improvement of housing conditions, etc., as engineering problems requiring technical training. The addition to state health organizations of divisions of epidemiology, industrial hygiene, and for the promotion of maternal and child hygiene, were developments within the present century which have increased the demand for public health personnel trained in the different branches of health work.

Out of this expansion of state health service there came the development of full-time local health departments organized to carry out intensive health promotional programs on a city, county, or district-wide basis. With this expansion of full-time local health service there was a still greater demand for health officers, nurses, and sanitary

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officers, but for whom no training facilities were available until after the World War.

Facilities for training nurses in public health work have been available in many states for a decade or more. Also the excellent public health schools organized at Hopkins, Harvard, and Yale a number of years ago have furnished trained public health officers, the most of whom have been placed in staff positions with our state departments of health. On the other hand, training facilities for supplying personnel for local health departments have not kept pace with the comparatively rapid development which has taken place in this field during recent years. As a result, our state health officers have been compelled to accept personnel for the administration of local health service who have been without either practical or theoretical training in health work. Many of these health workers have rendered excellent service, yet there are many others who have come into the public health field through the so-called "spoils system" which, unfortunately, is still being practised in many communities and doubtless will continue to be practised in the selection of health workers until health administration has reached that state of efficiency when positions in the field of public health will no longer be considered convenient berths for back-slapping vote-getters, or for the worthy aged who have spent long and active lives in other lines of endeavor. As health workers, we are therefore confronted with the obligation to bring public officials having appointive power to realize that executive and staff positions in the public health field are positions in which a very definite responsibility to the people is imposed. Until this is done the public health movement will continue to experience that lack of interest on the part of the lay public which will mean failure or, at best, very slow progress. Therefore, it should be the aim of every conscientious worker in the field of public health, also of every citizen who believes in the principles of preventive medicine, to overcome this far too prevalent attitude of indifference to efficiency which is met with in many appointive officers and their appointees.

Foreseeing the necessity for placing the public health field on a higher plane of efficiency, the Committee on Administrative Practice of the American Public Health Association several years ago recommended certain qualifications which should be required of personnel entering the field of public health. In 1935 the Committee on the Qualifications of Local Health Officers of the State and Territorial Health Officers Conference recommended certain qualifications which should be required by all state health officers of personnel entering public health work for the first time.

With funds allotted to provide for training personnel under the provisions of the Social Security Act, we now have an opportunity to bring into the public health field a group of workers who are basically better fitted to perform the duties which will be expected of them after they have received special training in their selected lines of public health work. If care is exercised—and certainly it should be exercised—in the selection of those nominated for public health training, and equal care is exercised by training centers in accepting students for matriculation, there is no question but that funds expended for this purpose will in the future return large dividends on the investment made for training public health workers. Not only will the individual receiving such training be equipped to render more efficient service in his special line of endeavor, but the whole public health movement will, within a few years, be given a stability which it has never before known.

On the other hand, there are many efficient public health workers who are now, and have for many years past, been engaged in public health work, and whose training has been confined to practical experience. They have attained success through hard work and the application of common sense principles to the solution of problems met with from day to day. This type of health worker has been largely responsible for progress made in the development of the nation-wide public health movement, and they should be given an opportunity to receive training under the provisions of the Social Security Act. Many of these workers are anxious for training and to meet this need, also the need for intensive training for those who are just entering the public health field, short courses are being organized to give intensive training over a period of 3 to 4 months, to health officers, public health nurses, and sanitarians. Such a school has been conducted at least once each year since 1927 at Vanderbilt University in Nashville, Tenn. Since funds became available under the Social Security Act, and in order to meet the demands for trained personnel, similar courses have recently been organized at the Universities of North Carolina, Michigan and Kentucky, for health officers and sanitary officers. Other short courses for public health nurses are being conducted by many public health nursing schools approved by the National Organization for Public Health Nursing.

In the far West we have ample facilities for training public health nurses at established public health nursing schools conducted by the Universities of California, Oregon, and Washington; but we have no permanently established facilities at the present time for giving intensive courses of training to health officers or sanitarians. Doubtless, such a school will be organized in connection with the University of California and will begin activities when the fall semester opens in August of this year. The school will be supported through tuition paid by the several states from Social Security funds and through a subsidy paid by the states on a per capita basis or by a subsidy paid by the U. S. Public Health Service to the school concerned through the state department of health of the state in which the school will be located. Plans are now under way for the organization of this school. That such a school, organized in the far West to serve the West, is urgently needed, is apparent for several reasons:

1. There are no training schools west of the Mississippi to which health officers or sanitarians may be sent for intensive short courses, and there is no school from which certificates in public health or degrees in public health may be obtained by medical officers who desire to take a course of training over one or more years.

2. There are many public health problems peculiar to the western states which do not exist as problems in the eastern states. Where the control of typhoid fever or the dysenteries or hookworm is a problem of first importance to the public health worker of Alabama, or Mississippi, or West Virginia, the control of Rocky Mountain spotted fever or tularemia is of equal importance to the health worker of Montana, or Idaho. Also, it is just as important that a health department in California be in a position to carry out or to direct rodent control measures as a means of preventing outbreaks of bubonic plague as it is for a health department in Louisiana or Florida to be engaged in mosquito eradication measures as a means of controlling malaria. Proper supervision of the great canning industry on the Pacific Coast is an important duty of the sanitarian of that area, whereas that particular phase of public health work is, by way of comparison, of minor importance to the sanitarian of the New England States. Thus we see the principal problems of the public health worker of the far West are in a sense peculiar to the far West, and for that reason if for no other reason, training facilities are urgently needed in the western part of the country to serve the western states.

3. On the other hand, let us consider the demand for trained public health workers in

the western states. The 11 western states comprising the 5th Engineering District of the U. S. Public Health Service, including New Mexico, Colorado, and Wyoming, and all states west to the Pacific Coast, cover a total area of more than 1,178,000 square miles and had a total population of less than 12 million people in 1930, or an average of only about 10 people to the square mile. This within itself is a problem peculiar to the western states. The land area of the largest county in each of these states varies from 4,800 square miles in Colorado to more than 20,000 square miles in California, with both Arizona and Nevada having counties with land areas above 18,000 square miles. Of the total of 400 counties in the 11 far western states, 42 have an area of more than 5,000 square miles; 38 have a population of 1 or less per square mile; 194 have a population of 5 or less per square mile, and in the entire area exclusive of California there are only 74 towns or cities having a population of over 10,000. Obviously these sparsely settled counties cannot individually afford now, nor will many of them ever be able to afford the maintenance of adequate health service.

PRESENT STATUS OF FULL-TIME COUNTY HEALTH SERVICE

In the entire area at the present time only 37 of the 400 counties are maintaining full-time county health service organized to serve the people of individual counties. In the state of New Mexico, however, 10 health districts have recently been established to provide a minimum health service to the people of all counties of that state. By the establishment of these districts under a state law providing that all counties must financially participate in the maintenance of a local health service as a part of one of the 10 districts set up under the state law, New Merico has taken the lead of all states in the West, if not in the entire nation, in solving the problem of furnishing a full-time and reasonably adequate health service to the people of the most remote areas as well as to the people of the more thickly populated areas of the state. While it is impossible to mention the details of the New Mexico District Health Law in this paper, other states contemplating the organization of local health service for sparsely settled counties would do well to look carefully into the law under which the district health service is being administered in New Mexico.

FUTURE DEVELOPMENT

By a recent survey of the 11 western states we are advised that plans have been completed for the establishment of 22 full-time county health units which will serve individual counties and will become operative as soon as trained personnel is available. Also, plans are under way for the organization of 37 new health districts which will furnish full-time health service to 103 counties. In several states it is expected that these district health units will in the beginning be maintained entirely from state funds or from federal funds made available to the states. In some instances it is planned that the counties comprising each district will be required to assume, according to population, their proportionate share of 10 per cent of the maintenance cost of the district after the first year and an additional 10 per cent each year thereafter until at least 50 per cent of the total cost is borne from local funds. Where legislation does not require local financial participation it is believed that this or some similar method will be the only means by which reasonably adequate health service can be furnished for the sparsely settled counties of the West.

To furnish needed personnel for new county or district health departments, now planned but not in operation, will require, by conservative estimate, more than 200 public health nurses, approximately 60 health officers, and at least 100 sanitary officers or sanitary engineers for local health departments. There will in addition be needed a considerable number of trained laboratory

technicians and at least some clerks trained in vital statistics work. County health units now established are already beginning to increase their personnel, and it is expected from the established units there will be an additional demand upon training centers for refresher courses for personnel now employed as well as for training personnel to be later employed.

In conclusion, I am pleased to say that the attitude of the state health officers of the far western states in the matter of selecting only the best trained personnel available for positions in both state and local organizations, has been particularly encouraging. So far, I know of no instance where staff positions in state health organizations have been filled by personnel untrained or inexperienced in the particular line of work to which they have been appointed.

On the other hand, however, I do know of a number of positions which are as yet unfilled because qualified personnel is not available. In some instances state health officers who formerly were compelled to approve for local public health positions inexperienced personnel recommended by local officials, have refrained from filling these positions or have refused to start local health departments which might now be under way except for a lack of suitable personnel.

This attitude is one which is highly commendable and which if continued will prove in the long run to be of inestimable value to the public health movement from both a state and a national standpoint. It is far better that the states carry over unexpended funds from one year to another, or if necessary return unexpended balances to the state or United States treasuries than it is to expend local, state, or federal money for so-called health service which will prove to be a discredit rather than a credit to the state public health programs. In other words, the public health leaders of the country are, in a sense, "on the spot." With the wise expenditure of funds made available for public health work under the provisions of the Social Security Act, and from local sources, there is every reason to believe that the public health movement will rapidly expand to serve a much greater proportion of the total population of the country, and that health work in general will advance in the esteem of the public at large.

It remains to be seen how effectively these funds will be expended, and it is certain that no portion of your Social Security allotment can be more efficiently expended than in providing, in so far as it is possible to do so, the best available training for those who are now or are expected to be placed in public health positions.

Better training for all classes of health workers means greater efficiency and, in the long run, efficiency will prove to be the best sort of politics. Anyhow, upon our ability to get the greatest possible return upon the investment made in public health promotional work will depend the continued support of our federal, state, and local governments.

Staphylococcus Bacteriophage Toxoid

An Improved Staphylococcus Antigen

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THE soluble exotoxin of *Staphylococcus pyogenes* is converted easily into toxoid. Active immunity in laboratory animals and in human beings may be produced by injection of this toxoid. The endotoxin of the staphylococcus, however, though it is probably an important factor in staphylococcus infections, has received little attention of late.

The antitoxin produced by the immunization of horses with staphylococcus toxoid and toxin is used in generalized staphylococcus infections. However, in certain cases of staphylococcemia in adults and adolescents, the administration of antitoxin, even intravenously, was of no effect.[1] The failure of the antitoxin to exert a favorable influence has been explained by the undue delay which frequently takes place before the correct diagnosis can be made. Upon the probable assumption that the mechanism of action of staphylococcus antitoxin in systemic staphylococcus infections is analogous to that of diphtheria antitoxin in diphtheria, it has been suggested that the staphylococcus antitoxin, due to the delay in its administration, is unable to repair the damage already done.

While these explanations no doubt are correct in many cases, some importance also may be ascribed to the absence of antibacterial antibodies in the staphylococcus antitoxin used. For instance, it is not impossible that a lack of bacterial antigen in the toxoid underlies failure of response to toxoid injections in some refractory cases of localized staphylococcus infection. Furthermore, clinical experience has been encouraging with antibacterial serums produced by the immunization of horses with live, killed, or lysed microörganisms, such as pneumococci, meningococci, and streptococci.

The therapy in different infections should not be based too closely upon existing analogies in certain directions, but all the pertinent factors, especially when dissimilarities exist, should receive due consideration. Just because the diphtheria bacillus and *Staphylococcus pyogenes* both produce an exotoxin, it does not necessarily follow that the activity of the two organisms is equally well neutralized by their specific antitoxins. If the invasiveness of the organisms, as in this case, happens to be very different, as shown by the extremely rare findings of diphtheria bacilli in the blood stream or cerebrospinal fluid,[2] in contrast with the relatively frequent occurrence of staphylococcemia and staphylococcus meningitis, prophylactic and therapeutic preparations should be made and administered with this difference in view.

Staphylococcus vaccines, stock and autogenous, have been used for a long time in the prophylaxis and treatment of localized staphylococcus infections;

and in a proportion of the cases they have proved of definite value. Staphylococcus bacteriophage is still used, although less extensively than a few years ago, and of late staphylococcus toxoid has been employed successfully. Since vaccines, bacteriophage solution and toxoid embody, as a group, the endo- and exotoxic antigens of *Staphylococcus pyogenes*, the character of the immunity produced by each of these therapeutic agents is probably distinctive. If, now, an antigen could be prepared which contained both endo- and exotoxic principles, the immunity produced should be more complete and presumably more effective than a strict antibacterial immunity or a specific antitoxin immunity.

Furthermore, if the antitoxin used in the treatment of general systemic staphylococcus infections also contained antibacterial antibodies, the administration of such a preparation would be more in accordance with the known characteristics of *Staphylococcus pyogenes* than the use of the specific antitoxin alone. These considerations have prompted an attempt to prepare a staphylococcus toxoid which would contain endotoxic as well as exotoxic principles of lysed staphylococci from many different strains.

Several methods for lysis of bacteria are available, but lysis by bacteriophage seemed the most promising, since bacteriophage solutions contain all the bacterial proteins set free by lysis. By this method denaturation by heat or by other treatment is avoided, and the endo-antigens liberated are presumably more like the bacterial elements arising from parenteral digestion of staphylococci which have invaded the host. The bacteriophage solutions may therefore be considered "super vaccines" containing all the chemical constituents of the staphylococci.[3] Larkum states,[4] that staphylococcus bacteriophage is an antigen of toxoid character, since it is devoid of hemolytic and dermonecrotic activity, is innocuous to rabbits, and will produce antitoxin which neutralizes the toxic properties of staphylococcus toxin.

EXPERIMENTAL

In order to avoid dilution of both the toxoid and the bacteriophage solution of the staphylococci, if a mixture of these products were prepared, the bacteriophage solution should either be made in the toxin for later conversion into toxoid, or the toxin should be made, using the bacteriophage solution as a medium. Bacteriophage solution could not be made in the toxoid owing to the presence of formalin. Since toxin production, however, was much inferior when prepared in bacteriophage solution as compared to the regular medium, whereas good growth, with subsequent clearing with bacteriophage, was obtained in staphylococcus toxin, the following steps were fixed upon for the preparation of this polyvalent staphylococcus antigen:

1. Preparation of the staphylococcus toxin, as described below
2. Berkefeld filtration of the toxin
3. Inoculation of the Berkefelded toxin with a pooled culture of six different strains of staphylococci together with an adapted staphylococcus bacteriophage
4. Centrifugation, if necessary, after clearing of the culture by the bacteriophage
5. Addition of formalin and merthiolate
6. Incubation for conversion of the toxin into toxoid, and for detoxification of possible endotoxins
7. Berkefeld filtration and testing for innocuity and antigenicity in the usual manner

PREPARATION OF STAPHYLOCOCCUS TOXIN

The staphylococcus toxin was prepared according to the method previously described by Leonard and Holm,[5] and had a strength of 3,000 m.h.d. and 2,500 m.d.n.d. per c.c., while 0.25 c.c. injected intravenously killed rabbits weighing 2.1 kg. in 3 minutes.

PREPARATION OF ADAPTED BACTERIOPHAGE

Staphylococcus bacteriophage, as prepared at the Squibb Biological Laboratories, was active toward all the pathogenic strains of staphylococci used in this work—but to different degrees. Four strains of *Staphylococcus aureus* and two of *Staphylococcus albus* were employed. By serial transfers over about 2 months the bacteriophage was adapted to such an extent that a dilution of 10^{-6} cleared a culture when incubated 24 hours at 37° C. and another 24 hours at room temperature.

PREPARATION OF BACTERIOPHAGE TOXOID

After Berkefeld filtration of the toxin, it was divided into three parts, of which one part served as a control, the second was converted into bacteriophage toxoid, while the third part was made into staphylococcus toxoid.

One liter of the toxin was inoculated with 1 c.c. of undiluted pooled staphylococcus culture and with 1 c.c. of a 1:1,000,000 dilution of the adapted bacteriophage; subsequent incubation took place for 24 hours at 37° C. and for 24 hours at room temperature. The staphylococcus cultures were the same strains which had previously been employed in the preparation of the toxin. Growth was profuse, and partial clearing started 7 hours after inoculation. After the incubation at room temperature, the liquid was perfectly clear and centrifugation consequently was not necessary. Hemolytic and dermonecrotic tests showed that no diminution of toxicity had taken place. Controls were made with untreated toxin similarly incubated. To untreated toxin and bacteriophage toxin was added formalin to make a concentration of 0.35 per cent and merthiolate to 1:10,000. The bottles were placed in the incubator at 37° C. for 17 days, when detoxification was complete. The usual tests for innocuity [5] were made on these final products. Since staphylococcus bacteriophage toxoid contains both endo- and exotoxic principles in solution, the combined antigen may be designated Ambo-toxoid.

The principle outlined for the preparation of the improved staphylococcus antigen, might be utilized also with other microörganisms which produce both exotoxin and endotoxin. In this manner it may be possible to obtain more effective antigens, both for active immunization of human beings, and also for the production of more potent antibodies in the horse or other animals.

IMMUNIZATION OF RABBITS

By animal inoculations the antigenic potency of staphylococcus bacteriophage toxoid was compared with that of toxoid derived from the same staphylococcus toxin, and with that of a fresh bacteriophage solution prepared in the same medium that had served for the production of the bacteriophage toxin. These preparations were tested in three experiments on different lots of rabbits.

Experiment 1—Fifteen albino rabbits, ranging in weight from 2,700 to 3,100 gm., were bled from the marginal ear vein, and the serum of each was tested by the hemolytic method for presence of "natural staphylococcus antitoxin." Lots of 5 rabbits were injected intravenously with 3 c.c. respectively, of staphylococcus toxoid, bacteriophage toxoid, and of bacteriophage solution. One week later the rabbits were bled, the serum was tested for staphylococcus antitoxin, and the animals were reinjected with 5 c.c. of their several preparations. After 1 more week a final bleeding was taken, and the serum again was tested for staphylococcus antitoxin. The results are recorded in Table I.

If rabbit No. 86 in Table I is eliminated on account of an initial high "normal" antitoxin titer, and if rab-

TABLE I

COMPARATIVE VALUES FOR ANTITOXIN PRODUCTION IN ALBINO RABBITS, AFTER INTRAVENOUS INJECTIONS OF STAPHYLOCOCCUS TOXOID, OF BACTERIOPHAGE TOXOID, AND OF BACTERIOPHAGE SOLUTION

Intravenous Injections

Staphylococcus Toxoid				*Bacteriophage Toxoid*				*Bacteriophage Solution*			
	Units of Staph. Antitoxin				*Units of Staph. Antitoxin*				*Units of Staph. Antitoxin*		
Rabbit No.	*Before Immunization*	*One Week After 1st Injection*	*One Week After 2d Injection*	*Rabbit No.*	*Before Immunization*	*One Week After 1st Injection*	*One Week After 2d Injection*	*Rabbit No.*	*Before Immunization*	*One Week After 1st Injection*	*One Week After 2d Injection*
89	0.06	0.96	2.0	84	0.04	0.64	7.0	79	0.04	0.64	0.64
88	0.06	1.6	d.	83	0.06	0.08 (Sick)	0.64 (Sick)	78	0.04	0.16	....
87	0.04	0.64	2.0	82	0.08	0.32	4.0	77	0.08	0.16	0.32
86	1.28	>12.0	>12.0	81	0.04	0.08	3.0	76	0.06	0.16	0.16
85	0.08	0.48	2.0	80	0.06	0.16	4.0	75	0.08	0.64	1.28

TABLE II

COMPARATIVE VALUES FOR ANTITOXIN PRODUCTION IN BROWN RABBITS, AFTER INTRAVENOUS INJECTIONS OF STAPHYLOCOCCUS TOXOID, OF BACTERIOPHAGE TOXOID AND OF BACTERIOPHAGE SOLUTION TOGETHER WITH RESULTS OF SUBSEQUENT INTRAVENOUS INJECTIONS OF THE IMMUNIZED RABBITS WITH LIVE, VIRULENT STAPHYLOCOCCI

Intravenous Injections

Staphylococcus Toxoid					*Bacteriophage Toxoid*					*Bacteriophage Solution*				
	Units of Staph. Antitoxin					*Units of Staph. Antitoxin*					*Units of Staph. Antitoxin*			
Rabbit No.	*Before Immunization*	*One Week After 1st Inj.*	*One Week After 2d Inj.*	*5 Billion Organisms Injected 2 Weeks After 2d Inj.*	*Rabbit No.*	*Before Immunization*	*One Week After 1st Inj.*	*One Week After 2d Inj.*	*5 Billion Organisms Injected 2 Weeks After 2d Inj.*	*Rabbit No.*	*Before Immunization*	*One Week After 1st Inj.*	*One Week After 2d Inj.*	*5 Billion Organisms Injected 2 Weeks After 2d Inj.*
7	0.16	7	9	Survived *	12	0.16	..	5	Survived	17	0.04	0.08	0.08	d. 88 h.
8	0.04	3	9	d. 44 h.	13	0.04	..	11	d. 44 h.	18	0.04	0.32	1.26	.....
9	0.16	4	5	d. 7 days	14	0.16	9	13	Survived	19	0.08	0.16	1.26	.....
10	0.04	0.16	4	d. 44 h.	15	0.06	5	13	d. 20 h.	20	0.04	0.08	0.08	d. 20 h.
11	0.04	3	5	d. 70 h.	16	0.04	5	9	d. 44 h.	21	0.08	0.64	0.64	d. 7 days

* Sick 7 days; died 9 days.

bits Nos. 78, 83, and 88 in the same table are disregarded on account of intercurrent disease, it seems evident that the bacteriophage toxoid rabbits showed a considerably better immunity response than the rabbits injected either with staphylococcus toxoid or with bacteriophage solution. The average antitoxin titers, if rabbits Nos. 86 and 83 are eliminated, are 2 units per c.c. of serum from the animals immunized with staphylococcus toxoid, 4.5 units for the rabbits injected with bacteriophage toxoid, and 0.85 units for the animals with bacteriophage solution.

Experiment 2—The rabbits were 15 brown animals, weighing from 2,100 to 2,400 gm. This was a duplicate of Experiment 1, except that 1 week after the last bleeding each animal received an intravenous injection of 5 billion staphylococci from a 16 hour pooled broth culture of the same virulent strains used throughout this study. The results, collected in Table II, are of the same order as those of Table I in that the highest antitoxin titer occurred in the serum from rabbits immunized with bacteriophage toxoid. The mean titer for this group was 10 units, for the toxoid group 6.2 units, and for the bacteriophage group 0.66 units of antitoxin per c.c. of serum.

It has been claimed that resistance in bacteremias caused by the staphylococcus depends upon the titer of serum antitoxin, but other factors may also be of importance as indicated by the results of the intravenous injections of live virulent staphylococci into the immunized animals of this group. Although the rabbits immunized with staphylococcus toxoid all showed considerable antitoxin production, none of them survived 10 days after the injection of the live organisms. Of the bacteriophage toxoid rabbits, No. 12, with 5 units, and No. 14, with 13 units of antitoxin survived, while the 3 other animals with 13, 11, and 9 units respectively, died. But of the animals injected with bacteriophage solution, which exhibited only a negligible capacity to excite antitoxin production, one rabbit, with only 0.08 units of circulating antitoxin per c.c. of serum, survived injection of the live culture for 3½ days, while another rabbit, with 0.64 units of antitoxin, survived 7 days.

Experiment 3—In this experiment 30 gray rabbits, weighing from 2,200 to 2,600 gm., were immunized in the same manner as in the other two experiments. Two of the animals died from intercurrent disease early in the test. In order further to test the supposition that circulating antitoxin is not a measure of resistance against live virulent staphylococci, the 28 survivors were injected intravenously, 1 week after the last bleeding, with 5 billion staphylococci from a 16 hour pooled broth culture of the same virulent strains that had been used in all of the previous experiments. The results are given in Table III.

As in the first two experiments the antitoxin titers are considerably higher for the rabbits injected with bacteriophage toxoid, than for the animals that were injected with staphylococcus toxoid or with bacteriophage solution, the group averages being respectively 6.9, and 4.0, and 0.49 units. The intravenous injection of the 5 billion virulent staphylococci caused the death in 72 hours or less of all rabbits immunized with staphylococcus toxoid, irrespective of antitoxin titer, while 6 out of 9 rabbits survived in the bacteriophage toxoid group, and 3 out of 9 animals survived in the bacteriophage solution group.

When the data for the 3 experiments are combined, it is found that the mean antitoxin titers of 18 rabbits, after inoculation with the 3 antigens were: staphylococcus toxoid, 4.3 units; bacteriophage toxoid, 7.3 units, and bacteriophage solution, 0.56 units.

TABLE III

COMPARATIVE VALUES FOR ANTITOXIN PRODUCTION IN GRAY RABBITS, AFTER INTRAVENOUS INJECTIONS OF STAPHYLOCOCCUS TOXOID, OF BACTERIOPHAGE TOXOID AND OF BACTERIOPHAGE SOLUTION TOGETHER WITH RESULTS OF SUBSEQUENT INTRAVENOUS INJECTIONS OF THE IMMUNIZED RABBITS WITH LIVE, VIRULENT STAPHYLOCOCCI

Intravenous Injections

Staphylococcus Toxoid

Units of Staph. Antitoxin

Rabbit No.	Before Immunization	One Week After 1st Inj.	One Week After 2d Inj.	5 Billion Organisms Injected 2 Weeks After 2d Inj.
97	0.16	>1.28	18	d. 72 h.
34	0.16	>1.28	6	d. 48 h.
35	<0.04	0.08	0.64	d. 48 h.
36	<0.04	0.16	4	d. 48 h.
37	<0.04	0.32	1.28	d. 48 h.
38	<0.04	0.16	1.28	d. 24 h.
39	<0.04	0.08	2	d. 48 h.
40	<0.04	0.16	4	d. 48 h.
41	<0.04	0.08	1.50	d. 48 h.
42	<0.04	0.08	1.50	d. 48 h.

Bacteriophage Toxoid

Units of Staph. Antitoxin

Rabbit No.	Before Immunization	One Week After 1st Inj.	One Week After 2d Inj.	5 Billion Organisms Injected 2 Weeks After 2d Inj.
23	0.32	>1.28	10	d. 48 h.
24	<0.04	>1.28	6	Survived
25	0.32	....	..	.....
26	<0.04	0.64	4	Survived
96	<0.04	0.16	1.28	Survived
28	<0.04	0.64	6	Survived
29	<0.04	0.16	5	d. 24 h.
30	0.16	>1.28	20	Survived
31	<0.04	0.16	6	Survived
32	<0.04	>1.28	4	d. 48 h.

Bacteriophage Solution

Units of Staph. Antitoxin

Rabbit No.	Before Immunization	One Week After 1st Inj.	One Week After 2d Inj.	5 Billion Organisms Injected 2 Weeks After 2d Inj.
44	<0.04	0.08	0.08	d. 24 h.
45	<0.04	0.04	0.08	d. 72 h.
46	0.16	0.32	0.32	Survived
47	<0.04	0.16	1.50	Survived
48	0.16	0.32	1.28	d. 72 h.
49	0.04	0.04	0.04	d. 72 h.
50	0.32	0.32	0.64	d. 24 h.
51	0.04	0.32	0.32	Survived
52	0.04	0.08	0.16	d. 24 h.
43	<0.04	....	....	.....

Of 15 rabbits which were injected with live, virulent staphylococci after their inoculations with staphylococcus toxoid, none survived more than 9 days, while 11 died within 48 hours. Of 14 rabbits immunized with bacteriophage toxoid, 8, or 55 per cent, survived the later staphylococcus injection. Finally, of 12 rabbits inoculated with bacteriophage solution, 3, or 25 per cent, withstood the injection of live staphylococci.

SUMMARY

1. A staphylococcus toxin containing lysed microörganisms was prepared by inoculating a staphylococcus toxin after passage through Berkefeld filter with bacteriophage and a staphylococcus culture. After lysis the resulting bacteriophage toxin was converted into toxoid by formalin and incubation at 37° C. as in the production of staphylococcus toxoid. The bacteriophage toxoid was tested for innocuity, and its antigenicity was compared to that of staphylococcus toxoid and of bacteriophage solution.

2. The antitoxin titers of rabbits immunized with the bacteriophage toxoid were consistently higher than the titers resulting from the immunization by staphylococcus toxoid or bacteriophage solution.

3. Intravenous injection of two-thirds of the immunized rabbits each with 5 billion live virulent staphylococci was fatal to all of the animals immunized with staphylococcus toxoid, whereas 55 per cent of the animals injected with bacteriophage toxoid survived, as did 25 per cent of the animals injected with bacteriophage solution.

4. Survival of immunized animals that have been injected later with live virulent staphylococci apparently does not depend upon the amount of serum antitoxin present.

5. It is probable that the procedure outlined above for the preparation of bacteriophage toxoid may be utilized with other microörganisms, especially those that yield endo- as well as exotoxins, and which may be lysed by bacteriophage. Thus it should be possible to obtain more effective antigens for active immunization of human beings, as well as for the production of more potent antibodies in the horse or in other animals.

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Diphtheria Immunization in Newark, N. J.

HEALTH PROGRESS [1] for September, 1936, gives a very interesting report on the control of diphtheria by immunization in Newark, N. J. Toxin-antitoxin was supplied free as early as 1922, and by 1926, somewhere between 10 and 20 per cent of school children and a smaller proportion of preschool children had been immunized. In 1926 there were 409 cases with 21 deaths, whereas for 11 years previously there had been an average of 1,000 cases and 50 deaths per year. There were still from 70,000 to 80,000 unprotected school and preschool children, and in 1927 an upward swing took place, with 696 cases and 62 deaths; 1,364 cases with 95 deaths in 1928; and 1,717 cases with 96 deaths in 1929. An active campaign was begun, and by 1930, 80 per cent complete immunizations had been done. At present 95 per cent of the children have been immunized, and in some schools, 100 per cent immunization has been reached.

The results are striking and inspiring. In 1930, cases and deaths dropped to 873 and 47 respectively. In 1931 there were only 223 cases with 16 deaths; in 1932, 70 cases, with 2 deaths; and in the 3 succeeding years, 21, 10, and 12 cases respectively, with 1 death for each year. In the most recent 2 full years there have been 18 cases only with 1 death. This is a wonderful record for immunization, and should inspire other health officers to pursue this line of protection.—M.P.R.

REFERENCE

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Expenditures in Certain Cities for Selected Health Services

THE cities entered in the Health Conservation Contest compete with each other in 6 groups based on population. These groupings are retained in the table below.

The data contained in this table have been compiled by the Sub-Committee on Current Health Department Practices of the Committee on Administrative Practice of the American Public Health Association. The information has been obtained from schedules submitted in the annual City Health Conservation Contests. The per capita expenditures are based on 1930 U. S. Census Bureau population figures for each of the 6 years portrayed.

The health services covered include: Administration; Vital Statistics; General Sanitation; Milk, Meat and other Food Control; Acute Communicable Diseases; Tuberculosis Control; Venereal Disease Control; Child Hygiene including Maternal, Infant, Preschool, and School Hygiene; Public Health Nursing, and Laboratory Services.

All expenditures for hospitalization, institutional care, medical relief, garbage collection and disposal, and capital expenditures and deficits have been *excluded*. In school hygiene, board of education expenditures for medical school inspection and school nursing have been *included* while expenditures for physical education and health instruction by teachers have not.

NOTE: This article is based on the Report of the Sub-Committee on Current Practices of Health Departments of the Committee on Administrative Practice. The members are: Joseph W. Mountin, M.D., *Chairman*, E. L. Bishop, M.D., Henry F. Vaughan, Dr.P.H., Allen W. Freeman, M.D., George T. Palmer, Dr.P.H., John L. Rice, M.D., W. Frank Walker, Dr.P.H., and C. M. Derryberry, Ph.D.

REPORTED PER CAPITA EXPENDITURES (IN CENTS) FOR SELECTED HEALTH SERVICES BY OFFICIAL AGENCIES ACCORDING TO POPULATION GROUPS FOR THE SIX YEAR PERIOD—1930–1935

Population Group I * City	*1930 Population*	*Official Per Capita Expenditures (in cents)* 1930	1931	1932	1933	1934	1935
Baltimore, Md.	804,874	91.3	....	74.9	64.4	70.6	74.0
Buffalo, N. Y.	573,076	98.9	95.1	93.0	87.8	82.3	85.1
Chicago, Ill.	3,376,438	....	97.8	85.6	71.3	....	....
Detroit, Mich.	1,568,662	116.4	120.2	97.7	76.8	85.8	94.8
Los Angeles, Calif.	1,238,048	....	56.9	57.0	54.0	49.2	....
Milwaukee, Wis.	578,249	101.7	108.2	107.9	98.9	89.5	95.2[1]
New York, N. Y.	6,930,446	....	....	....	....	....	60.0
Philadelphia, Pa.	1,950,961	60.9	61.0	....	....	....	....
Pittsburgh, Pa.	669,817	91.9	110.8	87.1	64.5	104.3	99.0
St. Louis, Mo.	821,960	63.4	67.7	60.3	52.8	54.7	....

* Group I—Cities of over 500,000 population

1. Exclusive of WERA.

Population Group II * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Akron, Ohio	255,040	58.9	57.9	46.0	37.7	36.1	37.7
Atlanta, Ga.	270,366	53.1	55.4	88.6	86.2	126.3	....
Cincinnati, Ohio	451,160	54.8	64.7	53.4	51.6	....	....
Dallas, Tex.	260,475	56.4	52.8	64.6	61.5	51.0	52.9
Denver, Colo.	287,861	92.8	93.8	62.2	....	....	....
Houston, Tex.	292,352	76.4	70.5	39.4	38.6	54.5	36.4
Kansas City, Mo.	399,746	87.1	86.3	78.0	67.1	....	....
Louisville, Ky.	307,745	....	64.0	49.1	51.0	51.6	53.0
Minneapolis, Minn.	464,356	61.9	63.2	63.7	60.7	61.5	56.6
Memphis, Tenn.	253,143	77.4	80.9	....	....	62.7	68.2
Newark, N. J.	442,337	160.8	169.7	155.3	144.9	145.4	146.2
New Orleans, La.	458,762	54.1	56.8	52.0	48.9	46.3	....
Oakland, Calif.	284,063	....	93.0	92.5	75.9	95.6	100.2
Portland, Ore.	301,815	53.0	54.8	52.0	43.3	40.3	....
Rochester, N. Y.	328,132	110.0	110.0	86.0	96.5	....	....
San Antonio, Tex.	231,542	41.9	27.7	....	....	....	....
St. Paul, Minn.	271,606	39.2	40.6	....	....	....	....
Toledo, Ohio	290,718	76.7	59.3	51.6	47.3	63.2	73.3
Washington, D. C.	486,869	104.5	110.1	107.5	99.9	95.2	106.7

Population Group III * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Albany, N. Y.	127,412	....	149.0	154.7	67.7	143.5	65.0
Chattanooga, Tenn.	119,798	52.4	52.4	....	....	32.2	....
Dayton, Ohio	200,982	60.7	59.8	46.1	47.1	47.2	....
Des Moines, Iowa	142,559	60.3	33.8	33.6	....	42.4	46.5
Duluth, Minn.	101,463	56.7	53.4	52.6	40.0	38.5	62.8
Erie, Pa.	115,967	77.2	85.4	71.3	80.4	75.5	81.4
Evansville, Ind.	102,249	....	....	....	....	67.8	48.7
Flint, Mich.	156,492	96.6	90.8	64.9	67.5	50.0	54.5
Fort Wayne, Ind.	114,946	....	....	....	....	36.2	35.6
Fort Worth, Tex.	163,447	104.4	110.3	78.4	70.2	75.5	81.1
Grand Rapids, Mich.	168,592	68.6	66.0	84.7	61.8	64.4	58.6
Hartford, Conn.	164,072	59.6	142.5	62.5	108.4	145.4	130.1
Kansas City, Mo.	121,857	35.4	36.2	....	....	....	....
Knoxville, Tenn.	105,802	64.3	61.2	52.7	47.2	44.6	50.2
Long Beach, Calif.	142,032	....	....	....	33.0	....	....
Lynn, Mass.	102,320	49.1	55.7	50.9	49.7	54.4	54.8
Nashville, Tenn.	153,866	77.4	93.3	99.9	....	82.3	....
New Haven, Conn.	162,655	111.1	111.0	102.8	91.9	93.1	96.8
Norfolk, Va.	129,710	46.6	66.9	49.6	49.9	43.2	....
Omaha, Nebr.	214,006	42.4	19.8	38.0	33.9	....	....
Peoria, Ill.	104,969	36.5	36.3	76.3	28.1	48.9	52.6
Reading, Pa.	111,171	72.1	81.2	84.5	82.5	82.2	87.0
Salt Lake City, Utah	140,267	84.8	74.8	47.5	61.0	60.7	54.7
South Bend, Ind.	104,969	25.4	22.8	31.1	22.5	25.6	23.0
Spokane, Wash.	115,514	57.8	45.1	43.6	....	....	....
Springfield, Mass.	149,900	77.0	87.3	83.1	76.0	76.2	86.8
Syracuse, N. Y.	209,326	145.3	167.2	121.8	128.9	135.7	124.1
Tacoma, Wash.	106,817	43.7	....	81.6	68.0	39.1	51.3
Tampa, Fla.	101,161	71.3	76.7	67.6	65.6	64.5	69.4
Utica, N. Y.	101,740	95.1	110.4	83.2	118.4	171.1	73.0
Wilmington, Del.	106,597	21.2	....	....	21.1	....	....
Yonkers, N. Y.	134,646	....	....	....	....	133.6	111.4

* Group II—Cities of 250,000 to 500,000 population
" III—Cities of 100,000 to 250,000 population

Population Group IV * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Augusta, Ga.	60,342	104.1	....	103.5	....	92.3	....
Austin, Tex.	53,120	60.4[3]	60.8[3]	....	....	34.9[3]	38.8[3]
Beaumont, Tex.	57,732	46.9	25.4	19.9	27.9	27.9	....
Binghamton, N. Y.	76,662	57.3	59.7	112.3	....	100.6	98.7
Charleston, S. C.	62,265	93.8	81.0	64.3	99.2	....	....
Charleston, W. Va.	60,408	67.5	54.6	53.4	44.7	31.9	55.3
Decatur, Ill.	57,510	67.8	68.8	58.5	48.9	117.8	....
East Orange, N. J.	68,020	69.4	70.3	68.6	59.6	50.5	58.7
Evanston, Ill.	63,338	99.9	109.6	91.2	....	34.9	37.6
Fresno, Calif.	52,513	68.9	55.8	51.0	....	....	....
Greensboro, N. C.	53,569	74.6	53.5	45.3	49.3	53.4	49.6
Hamilton, Ohio	52,176	58.9	59.8	....	....	....	....
Harrisburg, Pa.	80,339	82.7	89.0	....	....	....	....
Kalamazoo, Mich.	54,786	....	120.7	122.6	123.8	97.1	73.1
Kenosha, Wis.	50,262	107.9	125.5	....	....	....	....
Lakewood, Ohio	70,509	84.5	86.8	80.7	....	39.8	....
Lansing, Mich.	78,397	....	....	....	....	32.4	34.6
Lincoln, Nebr.	75,933	57.2[4]	60.5[4]	71.7[4]	51.4[4]	140.1	115.9
Macon, Ga.	53,829	59.8	62.0	55.8	....	....	....
Malden, Mass.	58,036	....	....	....	155.4	....	....
New Britain, Conn.	68,128	58.5	....	....	....	....	....
New Rochelle, N. Y.	54,000	....	....	....	....	89.1	88.7
Pasadena, Calif.	76,086	73.1	80.5	120.8	105.4	115.0	111.2
Portland, Me.	70,810	68.7	56.3	67.5	61.4	65.2	....
Pontiac, Mich.	64,928	129.2	114.4	87.4	49.8	46.2	....
Pueblo, Colo.	50,096	47.3	44.0	40.8	35.2	35.3	42.4
Quincy, Mass.	71,983	....	....	....	....	65.6	63.1
Racine, Wis.	67,542	99.1	83.2	79.6	63.7	71.7	71.3
Roanoke, Va.	69,206	32.8	31.3	36.5	35.6	28.0	....
Rockford, Ill.	85,864	32.9	30.1	22.7	21.5	38.9	....
Sacramento, Calif.	93,750	93.1	89.4	104.0	106.3	140.8	111.2
San Jose, Calif.	57,651	56.7	52.5	47.0	45.1	44.4	44.7
Saginaw, Mich.	80,715	76.3	80.7	....	....	35.6	37.6
Schenectady, N. Y.	95,692	147.6	143.6	188.8	144.7	146.0	157.0
Shreveport, La.	76,655	49.2	....	....	....	....	....
Springfield, Ohio	68,743	42.3	42.2	....	....	....	....
St. Joseph, Mo.	80,935	....	....	....	....	21.8	22.8
Topeka, Kans.	64,120	45.7	81.5	110.1	110.1	106.3	110.1
Waterbury, Conn.	99,902	40.5	47.1	54.0	45.1	51.6	56.3
Winston-Salem, N. C.	75,274	76.0	53.3	53.3	47.7	43.0	....
York, Pa.	55,254	28.1	....	....	....	....	....

Population Group V * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Amarilla, Tex.	43,132	....	....	....	....	73.3	76.5
Amsterdam, N. Y.	34,817	50.4[4]	50.5[4]	51.5[4]	41.5[4]	43.9[4]	....
Ann Arbor, Mich.	26,944	....	....	....	....	29.4	29.4
Attleboro, Mass.	21,769	79.3	83.0	....	....	....	....
Auburn, N. Y.	36,652	58.5	60.2	55.4	....	34.8	96.8
Aurora, Ill.	46,589	26.1	26.1	26.1	21.7	35.6	36.9
Battle Creek, Mich.	43,573	52.8	52.8	....	....	....	....

* Group IV—Cities of 50,000 to 100,000 population
" V—Cities of 20,000 to 50,000 population

2. Public health and hospitals.
3. Public health.
4. Health Department only.

Population Group V (Cont.) * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Bellingham, Wash.	30,823	....	....	....	65.6	37.8	....
Boise, Ida.	21,544	37.4	40.3	38.4	37.2	35.6	23.2[5]
Burlington, Iowa	26,755	50.9	63.6	....	....	....	....
Brookline, Mass.	47,490	130.5	138.0	141.7	140.1	143.9	145.0
Champaign, Ill.	20,348	21.1	7.4	7.4	7.4	7.9	....
Cumberland, Md.	37,747	79.5	82.1	....	....	....	....
Dubuque, Iowa	41,679	87.0	52.1	....	....	36.4[4]	37.0[4]
Eau Claire, Wis.	26,287	28.6	28.6	28.6	28.6	28.6	....
Elyria, Ohio	25,633	58.0	61.7	55.5	61.1	43.1	40.0
Fargo, N. D.	28,619	114.7	112.0	....	....	....	....
Fort Dodge, Iowa	21,895	....	54.6	....	....	....	....
Framingham, Mass.	22,210	116.6	109.2	....	....	82.5	88.4
Great Falls, Mont.	28,822	....	....	86.9	82.0	70.9	....
Greenwich, Conn.	33,112	180.3	174.3	....	166.5	136.4	225.9
Hackensack, N. J.	24,568	....	....	....	....	100.2	83.7
Hagerstown, Md.	30,861	....	....	....	38.1	....	....
Hannibal, Mo.	22,761	43.4	48.6	43.2	....	....	....
Hutchinson, Kans.	27,085	77.8	69.3	....	....	....	....
Ithaca, N. Y.	20,708	231.5	257.1	....	....	127.8	140.3
Joplin, Mo.	33,454	....	39.5	51.2	....	....	....
Lima, Ohio	42,287	....	....	17.8	....	....	....
Maplewood, N. J.	21,321	74.7	90.5	97.2	90.5	85.4	....
Marion, Ohio	31,084	....	....	....	....	33.3	32.9
Middletown, Conn.	24,554	....	....	47.6	....	34.6	35.2
Middletown, N. Y.	21,276	44.2	65.8	69.0	....	....	....
Middletown, Ohio	29,992	31.4	35.0	30.9	33.8	36.3	....
Mishawaka, Ind.	28,630	....	29.5	27.0	....	21.9	21.9
Muskegon, Mich.	41,390	126.8	134.7	....	....	....	....
Newburgh, N. Y.	31,275	93.9	110.3	103.8	....	....	....
Newport, R. I.	27,612	85.8	78.2	91.0	86.1	69.2	....
Orange, N. J.	35,399	78.0	78.4	71.3	65.5	67.2	103.8
Oshkosh, Wis.	40,108	74.1	48.9	....	....	....	....
Owensboro, Ky.	22,765	25.3	35.3	34.1	....	....	....
Pittsfield, Mass.	49,677	67.0	71.9	62.3	54.6	52.7	49.9
Plainfield, N. J.	34,422	....	....	....	....	90.4	90.4
Phoenix, Ariz.	48,118	....	....	....	....	54.7	68.9
Pomona, Calif.	20,804	....	216.3	96.6	....	141.4	....
Richmond, Calif.	20,093	110.9	108.3	100.4	....	....	....
Riverside, Calif.	29,696	24.0	22.0	22.1	20.3	20.6	18.3
Rocky Mount, N. C.	21,412	....	....	....	66.3	....	....
Rome, Ga.	21,843	29.3	45.6	....	....	....	....
Salem, Ore.	26,266	86.3	85.9	....	....	....	....
Sandusky, Ohio	24,622	35.2	35.2	....	....	....	....
Santa Barbara, Calif.	33,613	42.6	64.8	60.9	57.4	65.8	68.8
Sheboygan, Wis.	39,251	62.7	66.3	51.1	61.4	50.0	....
Steubenville, Ohio	35,422	23.0	....	....	....	....	....
Watertown, N. Y.	32,205	....	....	172.8	165.7	192.5	197.0
Wausau, Wis.	23,758	59.0	43.6	40.4	35.1	40.6	41.2
West Hartford, Conn.	24,941	....	42.6	52.9	42.5	42.9	....
West Orange, N. J.	24,327	98.4	101.0	83.6	74.2	....	....
Williamsport, Pa.	45,729	....	....	....	....	37.0	32.7
Winona, Minn.	20,850	52.7	52.7	52.7	47.9	47.9	47.9

* Group V—Cities of 20,000 to 50,000 population

4. Health Department only.
5. Budget.

*Population Group VI ** City	*1930 Population*	*Official Per Capita Expenditures (in cents)* 1930	1931	1932	1933	1934	1935
Albert Lea, Minn.	10,169	25.4	35.2	32.8	33.7	33.1	30.5
Atchison, Kans.	13,024	....	78.7	74.1	72.6	79.8	....
Athens, Ga.	18,192	111.9	109.8	87.8	84.5	85.4	....
Beckley, W. Va.	9,357	....	....	29.4	68.9	....	....
Benton Harbor, Mich.	15,434	16.8	16.8	....	....	....	....
Billings, Mont.	16,380	....	51.4	54.1	....	....	....
Blackwell, Okla.	9,521	....	....	....	....	68.6	66.7
Bluefield, W. Va.	19,339	84.7	70.6	91.5	61.6	57.6	49.9
Bozeman, Mont.	6,855	....	61.2	64.7	....	....	....
Bradenton, Fla.	5,986	51.9	51.9	....	....	....	....
Carrollton, Mo.	4,058	40.7	37.0	....	....	....	....
Charlottesville, Va.	15,245	....	114.5	....	....	....	....
Chestertown, Md.	2,809	181.6	187.5	186.9	189.6	....	....
Clarksville, Tenn.	9,242	28.3	32.2	....	....	....	....
Cliffside Park, N. J.	15,267	....	....	....	....	88.0	....
Columbia, Mo.	14,967	....	....	....	50.9	....	....
Corona, Calif.	7,018	....	....	....	....	61.2	58.6
Corsicana, Tex.	15,202	33.2	....	....	....	....	....
Coshocton, Ohio	10,908	....	....	....	....	....	20.2
Delaware, Ohio	8,675	29.0	29.0	29.0	29.0	29.0	....
El Dorado, Kans.	10,311	58.8	70.4	....	....	....	....
Elkton, Md.	3,331	51.9	....	....	....	....	....
Emporia, Kans.	14,067	63.1	43.5	57.9	50.1	....	....
Englewood, N. J.	17,805	....	....	....	69.0	62.2	66.6
Eveleth, Minn.	7,484	....	199.8	139.8	....	165.0	165.0
Faribault, Minn.	12,767	....	37.4	....	....	25.5	....
Fredericksburg, Va.	6,819	69.4	73.7	85.5	83.2	82.1	80.1
Grand Haven, Mich.	8,345	51.6	....	....	....	....	....
Greenville, Miss.	14,807	33.8	33.8	28.7	57.4	....	....
Helena, Mont.	11,803	....	78.7	79.4	92.4	103.6	....
Hibbing, Minn.	15,666	....	....	....	....	175.6	188.5
Huron, S. D.	10,946	62.1	62.1	....	....	....	....
Independence, Mo.	15,296	9.5	9.5	....	....	....	....
Jacksonville, Tex.	6,748	18.4	33.9	59.2	74.6	51.9	....
Jerome, Ariz.	4,932	....	73.0	....	....	....	....
La Porte, Ind.	15,755	....	31.2	....	23.4	....	....
La Salle, Ill.	13,149	124.2	149.2	151.3	95.6	92.5	....
Lodi, Calif.	6,788	79.7	88.3	84.7	....	....	....
Logan, Utah	9,979	....	....	....	....	18.5	18.5
Manhattan, Kans.	10,136	45.7	43.7	24.2	23.7	....	....
Marietta, Ohio	14,285	84.0	84.0	....	....	....	....
Medford, Ore.	11,007	65.5	....	....	....	....	....
Miami Beach, Fla.	6,494	161.0	145.3	....	85.5	139.0	192.2
Mitchell, S. D.	10,942	81.8	....	....	....	....	....
Muskegon Hts., Mich.	15,584	61.4	56.5	....	....	....	....
Natchez, Miss.	13,422	115.0	....	....	....	....	....
Natchitoches, La.	4,547	254.7	....	....	....	....	....
Newark, N. Y.	7,649	....	83.0	79.4	57.2	65.8	....
Ocala, Fla.	7,281	61.8	61.8	61.8	....	....	....
Ogdensburg, N. Y.	16,915	50.3	50.3	87.1	81.3	....	....
Oneida, N. Y.	10,558	....	....	....	....	71.1	71.1
Ontario, Calif.	13,583	87.5	112.8	....	....	....	....
Owego, N. Y.	4,742	31.6	....	....	....	....	....
Palestine, Tex.	11,445	14.4	....	....	....	....	....

* Group VI—Cities under 20,000 population

Population Group VI (Cont.) * City	1930 Population	Official Per Capita Expenditures (in cents) 1930	1931	1932	1933	1934	1935
Palo Alto, Calif.	13,652	117.2	126.2	128.1	123.4	139.3	160.1
Peru, Ill.	9,121	125.1	122.5	117.8	96.4	94.8	....
Pikeville, Ky.	3,376	....	....	74.1	....	....	....
Plattsburg, N. Y.	13,349	137.6	162.1	123.6	117.5	114.4	....
Prescott, Ariz.	5,517	63.7	62.3	....	....	....	....
Princeton, W. Va.	6,955	....	13.2	13.2	....	....	....
Provo, Utah	14,766	....	....	....	....	94.1	....
Redlands, Calif.	14,177	27.2	45.2	....	39.7	....	....
Richmond, Calif.	6,495	....	....	....	117.9	....	....
Ridgewood, N. J.	12,188	109.1	97.9	86.8	57.4[4]	61.5[4]	61.8[4]
Roswell, N. M.	11,173	27.0	34.2	....	....	....	....
Sherman, Tex.	15,713	....	35.7	39.4	....	....	....
Shorewood, Wis.	13,479	98.0	101.0	88.0	87.0	82.0	80.0
Sidney, Ohio	9,301	104.2	....	....	....	....	....
South Haven, Mich.	4,804	41.6	37.5	25.0	....	....	....
South Orange, N. J.	13,630	110.4	....	....	....	....	....
South San Francisco, Calif.	6,193	....	....	....	....	67.3	69.0
Springfield, Vt.	4,943	10.1[4]	10.1[4]	10.1[4]	....	....	....
Tallahassee, Fla.	10,700	....	....	....	114.2	....	....
Texarkana, Tex.	16,602	48.8	....	....	....	....	....
Torrance, Calif.	7,271	....	....	....	160.0	....	....
Tyler, Tex.	17,113	50.7[4]	60.0[4]	40.8[4]	54.0[4]	55.2[4]	....
Washington, Iowa	4,814	....	....	....	....	55.9	....
Wellington, Kans.	7,405	185.4	....	....	....	....	....
White Bear Lake, Minn.	2,600	....	....	....	....	74.5	73.4
Winfield, Kans.	9,398	55.1	55.1	29.8	....	28.5	....
Winnetka, Ill.	12,166	85.5	87.3	116.4	106.2	....	....
Yuma, Ariz.	4,892	84.0	84.0	84.0	84.0	84.0	....
Woodward, Okla.	5,056	13.8	....	....	....	....	....

* Group I—Cities of over 500,000 population
" II—Cities of 250,000 to 500,000 population
" III—Cities of 100,000 to 250,000 population
" IV—Cities of 50,000 to 100,000 population
" V—Cities of 20,000 to 50,000 population
" VI—Cities under 20,000 population

NOTES
1. Exclusive of WERA.
2. Public health and hospitals.
3. Public health.
4. Health Department only.
5. Budget.

Averages for the entire group for each year have not been published because of the fact that the number of reporting cities varies so greatly from year to year. It may be of interest, however, to know that among 79 cities reporting for a 5 year period, the average per capita expenditure in 1930 was 86.5 cents; in 1931 it was 90.1 cents; in 1932, however, it dropped to 82.9 cents; while in 1933 it dropped still further to 73.3 cents; but in 1934 it rose to 76.6 cents. Although figures for 1935 are not as yet available for a comparable group of cities, indications are that the average per capita health expenditure was higher in 1935 than in 1934.

Future of Maritime Quarantine in Canada*

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IN order to evaluate future maritime quarantine activities, the problem should be considered from the standpoints of past experience and present-day public health knowledge. Quarantine was officially imposed for the first time in Canada on October 20, 1721, with the object of preventing the entrance of plague into the country. In the preceding year, plague was epidemic in Marseilles, 30,000 people having died of the disease; and as vessels were constantly plying back and forth between Mediterranean ports and Quebec, which was then the center of French Canada, de Vaudreuil, the Governor, and Begon, the Intendent, introduced the following somewhat drastic quarantine regulations. Literally translated from the French they read:

> Captains or masters of vessels, bark or brigantine, from all Mediterranean Ports or which touched there, shall anchor in the stream off Isle aux Coudres. There, those who have cannon or swiveling guns shall fire three shots a quarter of an hour apart.
>
> Those who have no cannon nor swivel guns shall fire three musket shots, also at an interval of a quarter of an hour apart.
>
> One should also fly the distress signal. The same signal shall be repeated at intervals of two hours until such time as those whose duty it is to board the vessels will be cognizant of their arrival. It was forbidden to send small boats ashore, or to permit any member of the crew or passenger to disembark and communicate with any inhabitant of the colony. Corporal punishment was provided for the captain, master and those who went ashore. It was strictly forbidden to discharge cargo. An order was in force to burn any such cargo on the spot where found without further formality or judicial procedure.

The following list of questions was to be answered by the captain:

1. From what port does the vessel come?
2. At what ports did it touch on the voyage?
3. Was there infectious disease in any of the ports?
4. Were there any sick on board during the passage?
5. Were there any deaths?
6. How many?
7. With what disease?
8. Are there any sick on board at present?
9. How many?
10. What disease?

These quarantine regulations were revoked on June 19, 1724. If one compares the present-day list of questions submitted to captains of vessels undergoing quarantine inspection with that of 1721, it will be found that they do not differ essentially. Although this was the first occasion that quarantine was officially introduced, it was customary at an earlier date for the authorities at the port of Quebec to detain ships on which there was sickness until passengers and crews were examined by physicians.

* Read before the Conference of State and Provincial Health Authorities of North America at the Fifty-first Annual Meeting in Vancouver, B. C., June 22, 1936.

Soeur Francoise Juchereau, the historian of l'Hotel-Dieu de Quebec said:

> In the year 1710 a vessel named the Belle Brune arrived here (Quebec) coming from the Islands (West Indies). We suspected it of being infected with plague because four or five men were dead in less than twenty-four hours. We sent them surgeons to visit the sick and who, being satisfied that there was no danger to the community, they were permitted to disembark and we received from the ship many sick in our hospital, all of whom suffered with a burning fever during many weeks from an unknown sickness, but very dangerous by the ravages which it caused in the colony. Experience has taught us that it was the Mal de Siam (disease of Siam) that the Oriflamme brought to the Islands (West Indies) many years ago, and which has not left the country (West Indies) since that time.

"Mal de Siam" was the name given to yellow fever and it is of interest in passing to note that on account of the prevalence of this disease at the ports of New York and Philadelphia, Canada imposed quarantine against them in the year 1799 and again in the years 1802 and 1805.

Anticipation of the introduction into Canada of cholera, which prevailed in Europe in 1831, was the signal for extraordinary quarantine activities in the year 1832. Quarantine was established in that year at Grosse Isle in the St. Lawrence under the control of the military authorities, and all vessels proceeding up the St. Lawrence to Quebec were obliged to undergo quarantine. Two cannon placed at a strategic point were part of the quarantine equipment. Regulations similar in nature were introduced by New Brunswick, Prince Edward Island, and Nova Scotia. In spite of these precautions, cholera found its way into the country and thence into the United States with what disastrous result we know. In spite of quarantine measures, cholera was introduced by shipping and became epidemic in Canada in 1832, 1834, 1849, 1851, and 1854; and typhus was epidemic in 1847 and 1848. With the exception of influenza, these are the only occasions that contagious diseases were introduced into the country and reached epidemic proportions. Following the confederation of the provinces in 1867, a number of quarantine stations were established. Some of these have since been abolished. There are at the present time 4, namely, at William Head, B. C.; Grosse Isle, P. Q.; Partridge Island, N. B.; and Lawlor's Island, N. S. At all other maritime ports the customs officer acts as the quarantine officer. Should a case of quarantinable disease be discovered on board a vessel at one of these ports, the customs officer calls a physician, and the necessary quarantine measures are adopted. It should be noted that the number of vessels that call at these unorganized ports is negligible. If facilities are not available for handling a case of quarantinable disease at one of these ports, the vessel is directed to the nearest quarantine station.

Each of the above mentioned quarantine stations is equipped with a quarantine boat for the purpose of boarding vessels, a disinfection plant, detention buildings for contacts, and a hospital. The total hospital bed capacity of the combined stations is 241, and the detention bed capacity 1,946. In addition, there is a fully equipped laboratory.

Prior to the adoption of the International Sanitary Convention, signed at Paris on June 21, 1926, quarantine included minor infectious diseases. Under the Convention, it comprises only 5 diseases, namely, plague, cholera, yellow fever, typhoid, and smallpox. It is laid down in Article 14 that Signatories to the Convention undertake to maintain in their large ports and their surroundings sanitary services capable of applying the prophylactic measures laid down in connection with the quarantinable diseases above men-

tioned, and the Signatories are obliged to supply at least once a year to the Office International a statement of their sanitary organization. The Convention laid down the sanitary procedures to be followed in dealing with the quarantinable diseases when they are found aboard ship.

Article 15 states that any ship, whatever its port of departure, may be subjected by the sanitary authority to medical inspection. It is not obligatory to inspect all ships arriving at a port, although that is now the practice in many countries, including the United States and Canada. That much of this routine inspection is unnecessary, wasted effort, and futile, is well known.

It is stated that plague found its way into Quebec in the years 1710, 1718, and 1740, but a study of the meager records of those years leaves one very much in doubt as to the true nature of the epidemics. It is also claimed that 2 cases of plague were found in Vancouver and 1 in Victoria in 1906 and 1907. The cases in Vancouver were that of a young woman and a laboring man; while that in Victoria was a stevedore. All 3 recovered. During the summer of 1919, it was reported that 2 cases of plague occurred in a ship while on its way from Montreal to Bristol, the ship having sailed originally from Alexandria. The diagnosis was made in Liverpool. It has not been possible to confirm the diagnosis in any of these cases, but I think you will agree that the likelihood of plague being introduced by shipping today is rather remote, particularly in view of the extraordinary precautions that are taken to de-ratize vessels in all world ports.

The last time that cholera was brought to Canada was by a vessel which arrived in Halifax in the year 1871. Two men who were employed in coaling and watering the vessel contracted the disease, one of them conveying it to his family, 4 being infected and 2 dying. The widespread epidemics of cholera during the so-called cholera years in Canada were water-borne. The presence of cholera in a community today would not occasion alarm in view of the fact that practically all cities are possessed of modern filtration plants and water carriage systems.

No case of typhus has been found aboard ship at a Canadian port since 1915—21 years ago—and as immigrants from Europe to Canada are all deloused before embarkation, the probability of its occurrence is negligible.

We have not found a case of smallpox on board any vessel at any of the eastern ports of Canada since 1929, but cases of that disease are occasionally found on board vessels at the Quarantine Station at William Head, B. C. The compulsory vaccination of immigrants from smallpox infected areas prior to embarkation has reduced the probability of its occurrence among immigrants on board ship to a minimum, and the adoption of the smallpox immunity reaction in the case of contacts has likewise reduced the number of detentions.

Yellow fever has never been known to occur in Canada even during epidemics of that disease in New York, Philadelphia, and Baltimore, so that it need not be considered seriously from the standpoint of quarantine.

At the present time all vessels entering the maritime ports of Canada are obliged to undergo quarantine. They anchor in the stream, where they are boarded by the quarantine officer who examines both crews and passengers to ascertain if any of them is suffering from a quarantinable disease. Such examination, however, is made only from sunrise to sunset. Should the vessel arrive at night, crews and passengers are not examined, the word of the captain or doctor, as the case may be, being accepted without question. This

is an anomalous situation. If crews and passengers are not examined in the case of a vessel arriving at night, then we may ask why the necessity of examining those that arrive in the daytime. Moreover, practically all vessels now have wireless, and the quarantine officer knows the state of health of the vessel long before it has arrived, and the need for detaining a healthy vessel in the stream until the quarantine officer has given pratique is quite unnecessary.

Until the International Sanitary Convention was signed at Paris in 1926, it was customary in the case of an infected vessel to disembark, bathe, and disinfect the clothing and baggage of contacts. Disinfection of clothing and baggage has not been done since the Convention was signed and no ill results have followed. To carry out bathing, disinfection, and detention, large buildings and extensive equipment are necessary. These buildings and equipment have been standing idle for years. Staffs are required to maintain them, the expenditure is great and, in view of the exceptional occasion that quarantinable disease is found on board vessels, quite unjustifiable. Quarantine procedure needs to be modified. Park, in discussing quarantine in his *Public Health and Hygiene* published in 1928, has this to say about quarantine:

> The discoveries of the modes of transmission of yellow fever, typhus fever, and plague, and the development of public health activities by the Government, states, cities, and counties, all tend to minimize the necessity of doing more along purely maritime quarantine lines than to regard it as a palliative measure which is declining in importance in almost exact proportion to the effectiveness of public health measures in the ports of the world.
>
> Whenever a proper spirit of effective cooperation can be brought about on a permanent basis, wherein the Governments, port authorities, and shipping interests will unite on both business and public health principles to abolish maritime quarantine, except under extraordinary circumstances, such as epidemic or war conditions, the ordinary quarantine station, as we know it, need not be maintained.

After 25 years of experience in connection with maritime quarantine in Canada, I am firmly convinced that the boarding of all vessels by a quarantine officer in ports is quite unnecessary and should be discontinued or modified. There is no necessity to board all vessels that enter Canada, and I feel satisfied that the same thing applies to the United States. Quarantine inspection might well be confined to those vessels which report quarantinable disease on board, have had it on board during the voyage, or which come from an infected port. In Great Britain vessels included in the official list of infected ports and those that have infectious disease on board, or have had it on board during the voyage, are subject to quarantine inspection on arrival. Should a case of quarantinable disease be found on board, it is removed to hospital while the rest of the passengers are permitted to proceed to their destination, their names being forwarded to the public health officer who keeps such passengers under supervision. In this way, there is no need for maintaining large quarantine stations and staffs. We are told that the objection to this procedure in Canada, and I believe in the United States, is that we are not as highly organized from a public health standpoint as England, where there is central public health control, and that it would be impossible to obtain the coöperation of public health officials of provinces and states to supervise passengers from infected vessels who had been permitted to proceed to their destination. During 1934 only 2,065 vessels were boarded by medical officers in London, whereas 20,856 were inspected at that port for the purpose of ascertaining the presence of rats and for de-ratization. Keeping down the rat population in vessels is

considered of greater importance than the routine examination of passengers and crews for the presence of infectious disease.

The boarding station for the London area is at Gravesend and, in addition to a launch, comprises a hospital consisting of one ward of 8 beds, one of 4 beds, and 8 cubicles. There is also a smallpox hospital containing two wards of 4 beds each. Such are the quarantine facilities of the greatest of world ports at which thousands of vessels arrive annually.

In concluding this brief paper, I would recommend that the following modifications be made in Canadian quarantine procedure:

1. That quarantine inspection be confined to vessels that report quarantinable disease on board, or have had such disease on board during the voyage, or have come from an infected port so declared in the official list.

2. That vessels be boarded at the dock and not in the stream as at present. An exception may be made in regard to the latter only where boarding in the stream expedites quarantine procedure.

3. That the large, expensive, unwieldy and unnecessary quarantine stations be abandoned, substituting therefor small, modern units consisting of detention quarters for not more than 100 persons and a hospital unit on the cubicle system of half a dozen beds.

4. That de-ratization requirements as laid down in the Convention of Paris of 1926 be adhered to.

5. That laboratory facilities for bacteriological examinations be made by arrangement with the port health authorities.

I believe that such procedure will afford adequate protection to the country.

DISCUSSION

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I think, although I am not prepared to speak for the chief of our Division of Foreign Quarantine of the U. S. Public Health Service nor for the Surgeon General, that the Public Health Service would be interested in this proposal. In fact, members of the Surgeon General's staff have often discussed this very thing and have given a great deal of consideration to it.

I might be willing to go just a little bit further than Dr. Heagerty has gone and suggest that one of the most effective protection measures as far as the introduction of disease into the United States is concerned would be the development of adequate local health services at our seaports and along our borders.

As far as bubonic plague is concerned, I believe we can accomplish far more in protection by rat-proofing vessels and rat-proofing our seaports. The principal disease that the United States has to fear right now, so far as introduction is concerned, is yellow fever through airplane travel from South America. However, I think if we could persuade our state and local authorities to clean up this disease, even in our southern states, we need have no fear of introduction of yellow fever through airplanes.

RESOLUTION *

RESOLVED that the Conference of State and Provincial Health Authorities of North America endorse the recommendation contained in the address presented by Dr. J. J. Heagerty of the Department of Pensions and National Health of the Dominion of Canada, that the Maritime Quarantine Law be amended and its operation so simplified as to prevent the inconvenience to individuals entering Canada and the United States and particularly to reduce the expense to the shipping industry of the Dominion of Canada and of the United States.

* Adopted by the Conference of State and Provincial Health Authorities of North America, Vancouver, B. C., June 23, 1936.

Report of Committee on Transportation*

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Chairman of the Committee, and State Health Commissioner, Des Moines, Iowa

IN confining this report on transportation to the problem of air conditioning of trains, it is hoped to present certain sanitary aspects that may be of interest to this conference. I acknowledge my particular appreciation to Thomas R. Crowder, M.D., the *Consultant*, as without his valuable assistance this report would not have been possible.

As recently described by W. B. Coffey:[1]

> Air conditioning is a new term, comparatively recently adopted to describe synthetic or tailor-made weather, or the production of a comfortable atmospheric environment compatible with health in which to travel, work, and live. Air conditioning is concerned with the heating, humidifying, cleaning, circulating, and deodorizing of the air in winter, and the cooling, dehumidifying, cleaning, circulating, and deodorizing of the air in summer. With the elimination of discomfort it might tacitly be assumed that comfort will follow. To a large extent this is true in the present state of progress, but not completely so. Like other synthetic materials, synthetic weather is still inferior to the best that nature has to offer. No one has yet synthesized the weather of a perfect spring day, or of a glamorous sub-tropical moonlit evening.

Railroads since 1930 have equipped about 6,000 railway passenger cars with air conditioning devices for the following purposes, as stated by Dr. Coffey:

1. To improve health, safety and comfort of the passengers, especially in the summer vacation months, when the weather constitutes a real drawback to travel.
2. To produce as far as possible the general sense of physical well-being.

Two methods of air conditioning trains are now in general use. They are (a) mechanical cooling, and (b) ice cooling. The former uses a liquefied gas which cools a bin type radiator when evaporated within it; the latter uses water from melting ice, which cools a similar radiator when circulated through it. In each case the air is cooled by passing over the radiator. Regulation of the amount of cooling is accomplished by thermostatic control of the rate at which the expanding gas in the one case or ice water in the other is pumped through the radiator.

Variations of the above systems are found, one of which utilizes the evaporation of water in a very high vacuum to cool the radiator. From a mechanical and engineering standpoint installations vary widely. The Pullman Company has its own scheme, while the various railroads have utilized others which differ in many essential respects among themselves. All systems utilize recirculation of the air, requiring, therefore, a closed system of ventilation with some mixture of fresh and recirculated air in the ducts.

A description of one modern air-conditioning installation on trains is given in the March, 1935, issue of *Heating, Piping and Air Conditioning*. Thus, in describing the units of the Flying Yankee it is stated:

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* Presented before the Conference of State and Provincial Health Authorities of North America at the Fifty-first Annual Meeting in Vancouver, B. C., June 23, 1936.

Each of the 5 passenger compartments of the new Flying Yankee is air conditioned, the compressors and condensers being housed beneath the floor of each unit, while evaporators and distributing fans are built into the roof above the vestibules. Fresh air is taken in through the doors into the vestibules and is then passed through filters where it is mixed with recirculated air in the proportion of 1:5. In the evaporator are located two combination cooling and heating coils, one at either side, and between these are two double blowers which project the conditioned air through centrally located grilles into opposite passenger compartments. The air is returned through grilles at either side of partitions at the roof. Here, too, are located removable and washable filter pads. Capacity of the refrigerating system is 5½ tons per car. In moderately cold weather the overhead coils heat the compartments with outside wall radiation. The entire equipment for the train weighs approximately 4,600 pounds complete.

With regard to the general mechanical requirements of railway air conditioning, the following remarks taken from the *Guide of the American Society of Heating and Ventilating Engineers* (14th ed., 1936, chapter 13, p. 258) may be stated:

The general principles of air conditioning as applied to buildings also apply to railway cars, but due to space and weight limitations and the severity of the service, equipment designed for stationary work in buildings is seldom suitable for car installations. Equipment for railway use must be safe, reliable, compact, light in weight, accessible for inspection and repairs, as nearly automatic in operation as possible, and have low initial operating and maintenance costs. To air condition a car properly, ventilating, filtering, heating, cooling, humidifying, and control equipment must be provided together with an adequate power supply. Air from the interior of the car is mixed with air from the outside and passed through the air conditioning unit where it is heated or cooled, humidified or dehumidified and delivered to the interior of the car through suitable ducts and grilles.

One of the important problems in connection with air conditioning of cars is that of ventilation. In non-air conditioned cars, ventilation is accomplished by exhaust fans, roof ventilators, and open doors and windows. This provides an ample supply of outside air and in addition a large amount of smoke and dirt which may be excluded in an air conditioned car.

An average car contains approximately 5,000 cu. ft. of air which is being contaminated by the occupants who are continually liberating heat, carbon dioxide, moisture, odors, and some organic matter from the breath, skin, and clothing. The heat and moisture can be removed by cooling and dehumidifying, but the others can be handled only by proper ventilation. In the average car from 2,000 to 2,500 cfm. of air should be delivered by the air conditioning unit.

Smoking rooms present a special problem. The cloud of smoke that usually hangs near the ceiling can be broken up by having the incoming air directed along the ceiling in all directions at a velocity somewhat higher than that used for the rest of the car. The air should be exhausted from the room by a fan or through a grille to the wash room or lavatory, to be exhausted to the outside through a ventilator.

Air conditioning of trains is based on comfort considerations. In this respect, a distinction between short and long hauls must be made. The human body requires from 1½ to 3 hours to become thermally adjusted.

Naturally, trains take on and drop passengers along route and the question as to whether adjustment for short or long haulage air conditioning at best is open to question.

It must be held in mind in dealing with air conditioning problems that personal acclimatization is an important factor. The sense of coolness on entering an air conditioned car is temporary and body adjustment will take place only after a period of time which will give a person a sense of comfort. Furthermore, as must be obvious, not all persons can be comfortable under one set of conditions. Age, sex, clothing, and state of health are factors to be considered.

Remarkable results are reported from the research laboratory of the Harvard School of Public Health on the application of ultra-violet rays to air conditioned chambers with a marked reduction of total bacterial count.

The essential principles of air conditioning are—

1. *Ventilation* — Defined as the process of supplying or removing air by natural or mechanical means to or from any space. Air conditioning is more

inclusive and implies the control of any or all the physical and chemical qualities of the air. Ordinarily, both ventilation and air conditioning are concerned with creating comfortable and healthful conditions in closed spaces.

2. *Physiological Reactions*—The importance of temperature, humidity, and air motion depends upon the influence which these factors exert on body temperature, comfort, and health. Our body temperature which is extremely constant, is dependent upon the balance maintained between its heat production and heat loss. This balance is automatically maintained in healthy persons by the action of the heat regulating mechanism. This is done by (1) regulation of internal heat production (chemical regulation), and (2) regulation of heat loss by automatic regulation in the rate of cutaneous circulation and the operation of sweat glands (physical regulation). On warm days, it is to be noted that the surface circulation of blood is increased; on cold days, the surface blood vessels contract and thus lie further beneath the skin which tends to insulate them.

3. *Acclimatization* — Acclimatization deals with man's ability to adapt himself to changes in air conditions. This is usually accompanied by an intangible psychological factor. Some persons appear to suffer intensely in a room with windows closed although atmospheric conditions generally may be quite comfortable. Perhaps the best example of acclimatization is our adaptability to winter and summer conditions of comfort. Thus, in summer a temperature of 68° F. may be uncomfortably cool, whereas in winter such a temperature is felt to be warm. Clothing alone does not explain entirely these different sensations.

A moderate amount of variability in temperature is known to be beneficial to health, comfort, and the performance of mental and physical work. On the other hand, extreme changes are not beneficial and often are definitely harmful. The high pneumonia rate prevalent among steel and foundry workers who are subjected to wide variations of temperature illustrates the deleterious effects of sudden temperature changes of wide range.

4. *Comfort*—Our sensations of comfort are dependent upon temperature, humidity, and air motion, and also the factor of radiation between a person and surrounding hot or cold surfaces.

No single comfort standard can be laid down which would meet every need, since the state of health, age, sex, clothing, activity, and degree of acquired adaptation are factors which affect comfort standards.

The greatest emphasis is always to be placed on the factor of comfort.

PUBLIC HEALTH ASPECTS

Aside from reports in engineering publications, very little information is available on the relation of air conditioning to health and disease.

In a report by Dr. Crowder on the medical aspects of air conditioning to the Association of American Railways this year, the following comments appear:

1. There appears no dependable evidence that the passing between a cooled car and the outside in either direction has an effect on the production of the common cold. These changes are regularly undergone in winter, although there is generally an increase of clothing in going from warm to cold, which in summer there is not. In summer there is also the further element of sweat.

2. There is considerable evidence that both hay fever and asthma are temporarily relieved by several hours of traveling in air conditioned trains. There seems no doubt that in hot weather cooled cars will bring a degree of relief to the victims of these conditions on the simple basis of their coolness, their lower humidity, and their relative freedom from dust, while the limitation of pollens may benefit them specifically.

3. During the terrible dust storms that obtained throughout the Central West last year,

air conditioned cars remained essentially free from perceptible dust, and passengers went through with comfort, whereas ordinary cars became at times almost intolerably dusty.

4. There is a rather common opinion that "on leaving the conditioned car the temperature change is too abrupt"; yet the same abruptness prevails in winter on entering a warmed room from without and with a much greater temperature change. It is not believed that it does any harm, though it may cause temporary discomfort. At any rate, the fault here seems to lie with the outside and not with the inside. As the lawyers would say, the weather is an Act of God, and there is no responsibility for any damage it may do. Air conditioning plans to maintain good weather inside regardless of what nature provides.

5. The criterion of our success in air conditioning is bodily comfort—no chilliness, no sensible sweating, no congestion of the skin and mucus membranes from a distorted circulation in its attempt to get rid of body heat to a reluctant environment. These are the conditions under which normal physiological functions are maintained in normal balance, so far as the medium in which we live controls them. They are, then, the conditions for the maintenance of bodily health in so far as health is affected by this same meduim.

If we accept this view, air conditioning must be a health promoting measure rather than one which holds any danger of harm. There is no evidence that it contributes to ill health if reasonably well done. With continued improvement, it may be said with confidence that air conditioning will be a benefit rather than a danger to public health.

REFERENCE

1. Coffey, W. D. *Pacific Coast Med.*, 3, 1 (Mar.), 1936.

Emancipation of Women

THE nervous strain of public competitions is in my judgment more likely to be productive of damage to the reproductive organs than any physical exertions. If such men as Perry and Crawford crack under the strain of tournament tennis it cannot be particularly beneficial to the woman's more labile nervous system. Further, stars at any game or sport either remain single or if they marry they frequently remain barren. We may therefore conclude that exercise and sport in all forms are good for women, but that there is room for doubt whether the strain of serious competitive sport and the attitude towards reproduction it imposes are beneficial either to the individual or ultimately to the nation. —Geoffrey W. Theobald, M.D., Some Effects of Emancipation on the Health of Women, *J. State Med.*, June, 1936.

Newer Aspects of Amebic Dysentery*

STUDENTS of public health will recall that in the summer of 1933 a unique outbreak of amebic dysentery occurred, with the point of origin at Chicago. The outbreak was largely synchronous with the Century of Progress Exposition. It will be recalled further that the infection in the great majority of cases was traced to sources in two hotels. The Committee on Research and Standards of the American Public Health Association appointed a sub-committee composed of engineers, health officers, and epidemiologists who studied the facts in connection with the outbreak in order to make readily available information that would be of value to sanitary engineers, health officers, and others. The report of this sub-committee, which has been approved by the Committee on Research and Standards, follows:

ADMINISTRATIVE

The committee is of the opinion that the routine examination of food handlers for the purpose of discovering carriers of amebic dysentery is impracticable, and of no value as a public health control measure.

Amebic dysentery (clinical amebiasis) should be a reportable disease in all health jurisdictions.

Neither isolation of the patient with amebic dysentery (clinical amebiasis) nor quarantine of contacts is considered necessary or desirable.

An effort should be made to determine the source of infection in each (amebic dysentery) case.

Existing designs and installations of water systems in buildings should be studied by competent authorities to detect and eliminate hazards to the safety of the water supply.

The committee is of the opinion that plans for water supply piping systems in buildings, including storage tanks and accessories and the drainage system pipes, should be examined and approved by competent authorities before the issuance of construction permits, in order to prevent potential hazards to the safety of the water.

The committee is of the opinion that where a city water supply for drinking or domestic purposes is derived from a source subject to contamination, the purification process should include filtration for the removal of the cysts of the *Endameba histolytica* because of their resistance to other forms of appropriate treatment, such as chlorination.

Pending the determination of the source of infection in institutional or other localized outbreaks immediate steps should be taken to:

1. Provide a safe supply of water by boiling or changing the source of the water supply to one of known purity.
2. Utilize all known measures for the protection of the food supply.
3. Correct all obvious insanitary conditions and practices.
4. Enlist the coöperation of both a competent public health engineer and an epidemiologist.

It was voted to recommend to the Committee on Professional Education that consideration be given to the practicability of encouraging the training of a greater number of thoroughly competent protozoölogists.

* Report of the Sub-Committee presented to the Committee on Research and Standards May 19, 1936.

ENGINEERING

(See also Engineering Appendix)

In the prevention of amebic dysentery, consideration should be given to the following engineering policies:

1. Complete physical separation of all water systems used for drinking or domestic purposes from secondary water systems.
2. Regular systematic and thorough inspection for cross-connection hazards on premises wherever secondary water systems exist or where the domestic water supply is re-used for any purpose.
3. Establishment of practical working policy for supervision and control of such hazards between municipal water works and the health authorities.
4. Education of architects, designing engineers, building owners and operators, and plumbers in the prevention and correction of such hazardous conditions.
5. Protection of the water supply for drinking or domestic purposes against contamination through fixtures, processing tanks, sewers, etc.
6. Adequate enforcing of an up-to-date plumbing code governing installation of water supplies, fixtures, and drainage systems.

EPIDEMIOLOGICAL

In the epidemiological study of amebic dysentery, in addition to such previously accepted factors of transmission as by eating of contaminated food, by hand contact with moist objects soiled with discharges of infected individuals, and by flies, consideration should be given to the following facts:

1. Transmission by water has been established beyond question.
2. A water supply indicated as satisfactory by the physical, chemical, bacterial, and microscopic analysis made in accordance with standard methods of water analysis may not be free from living pathogenic protozoa.
3. Manifest clinical disease occurs in but a small proportion of those newly infected.
4. Evidence as to the distribution of the infection may be effectively sought through the examination of stools of healthy persons possibly exposed.
5. Amebic dysentery should be looked for in the epidemic occurrence of any water-borne disease.

CLINICAL

Delay and inaccuracies in the diagnosis, and inadequate or inappropriate treatment contribute to the severity of amebic dysentery and may be responsible for a high mortality rate. Better clinical teaching relative to this disease is emphasized as an effective measure for control and treatment. It should be emphasized to all physicians and medical students that:

1. Amebic dysentery is not limited to the tropics.
2. Atypical clinical manifestations are commonly encountered. Acute surgical conditions of the abdomen may be closely simulated.
3. Specifics are available which if administered early and in adequate dosage almost invariably bring prompt relief and rapid recovery.
4. Diagnosis of amebic dysentery should be considered in any case characterized by blood and mucus in the stools.
5. Entire dependence should not be placed in negative findings of stool examination in diagnosing clinical amebic dysentery as the disease may exist even though laboratory findings are negative.

NOMENCLATURE

It *is* the opinion of the committee that if the term "amebiasis" be used it should be followed by the words *amebic dysentery* in parentheses when a clinical condition is referred to and by the word *carrier* in parentheses when a carrier is meant.

Those interested in a more detailed discussion of the various aspects of amebic dysentery are referred to *Bulletin 166* of the National Institute of Health, entitled "Epidemic Amebic Dysentery—The Chicago Outbreak of 1933."

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ENGINEERING APPENDIX

Recognizing that something more than a simple delineation of engineering policies pertaining to safeguarding water systems is desirable, the following supplement to this report is submitted.

I. SEPARATION OF DRINKING OR DOMESTIC WATER SUPPLIES FROM SECONDARY SUPPLIES

Definition: By a secondary water supply is meant water from a source other than that used for the drinking or domestic supply in the community, institution, or premises, including reused water from any source.

A. Where a secondary water system exists on any premises, it is generally deemed prudent and in the interest of public health to require that the public water system be definitely protected against any possibility of pollution from the secondary system. An effective way of accomplishing this is to require that the premises be supplied from the public system through an intermediate reservoir or tank with piping and fittings so arranged that under no circumstances could the secondary water be forced or drawn back into the mains of the public system. The tank should be so located and covered as to be protected against flooding by sewage. Preferably it should be above ground. Such a requirement may, in some instances, necessitate re-pumping of the water obtained from the public system. This extra cost is not considered unreasonable in view of the potential risk to the public water system which may exist because of the maintenance of the secondary source of supply. An example of this case would be a plant or premises maintaining a secondary water system from a polluted source for fire protection or industrial uses.

B. Although in new installations complete separation of water systems may be accomplished, there is no assurance that at some future date cross-connections between the domestic and secondary system will not be made. Therefore, practical and effective means must be adopted to check and minimize this possibility. One to be recommended is the identification of the various exposed piping systems by painting them distinctive colors. Light blue is suggested for the domestic water system. Other checks are the keeping of up-to-date accurate piping diagrams and the centralization of authority for all piping changes or additions. The lack of proper piping diagrams may result in cross-connections being made innocently by parties not familiar with local piping installations or because of lack of proper working drawings. This is especially true when work is done by outside contractors or where a new operating staff is assigned to a plant. By centralizing responsibility and authority for all piping changes in one competent person, much could be accomplished in preventing cross-connections of "convenience" and "ignorance" which are made more frequently than is generally recognized. Before changes or additions to the water piping systems on premises are made, the plans should be approved in writing by the proper official in charge of plumbing inspection, or of the public water supply, or both.

C. Under certain unusual and very extreme conditions, where the hazard to life because of fire is obviously and demonstrably greater than the health hazards, if a physical connection be provisionally permitted between a domestic and a secondary water system, the interconnection should be protected by approved double check valves with a drain in the pipe between the two checks valves and an alarm system to

warn the responsible operators when water passes by either check valve. Such a system should be under regular and frequent inspection of the health and water authorities and should be fitted with the necessary accessories to permit convenient testing of the double check valve system. An interconnection of this type should be made only after securing written approval of the responsible health authorities, and should be removed as soon as some other safe and adequate means of fire protection can be obtained.

II. INSPECTIONS TO DETECT CROSS-CONNECTIONS AND ALLIED HAZARDS IN WATER AND DRAINAGE SYSTEMS

Every health and water department should catalogue premises within its jurisdiction where secondary water systems are maintained. Regular and frequent inspections should be made to see that cross-connections are not made and that all other potential hazards are eliminated or effectively guarded against. These inspections should be thorough in every detail. Inspectors should be instructed to analyze plant conditions from the standpoint of potential hazards which might develop under abnormal as well as normal conditions. Usually pollution of water supplies results from extraordinary conditions neither expected nor provided for.

Practical tests should be made of hydraulic conditions established in the piping and drainage systems when subjected to abnormal flow conditions. The use of apparatus and instruments for recording performance during these tests is recommended. In general, tests should subject the entire waste system to pressure sufficient to detect leakage which might not develop under average flow conditions. The water system should also be subjected to negative head or vacuum to detect possible siphonage from fixtures, processing tanks, or drains.

In old buildings, the pipes should be inspected for corrosion and deterioration of any character, especially in the upper half of the pipes. Piping, tanks, or other equipment subject to strain under abnormal conditions should be carefully examined. Examples of abnormal load conditions are: water hammer, pressure due to heat or ice formation, failure of safety valves or vacuum breakers, excessive wind and snow loads, flooding, failure of tank supports.

Under no circumstances should sewer or drain pipes pass directly over open water tanks or premises where ice or food is being stored or handled.

Food and water, including ice, should not be stored, prepared, or handled where there is any possibility of flooding due to back flow of sewers under pressure. Drains from water tanks, filters, refrigerators, and other food storage space should not be directly connected to sewers.

III. WORKING POLICY BETWEEN HEALTH AND WATER WORKS OFFICIALS RELATIVE TO WATER SUPPLY HAZARDS AND RESPONSIBILITIES

A. It is particularly important that public health and water works officials coöperate with each other closely, in the elimination and prevention of cross-connections, and also with fire and building department officials in general.

B. Definite policies should be agreed upon, defining the respective jurisdictions and permissible remedial measures which may be applied for correction of defects discovered, and approved preventive measures to guard against creation of new ones.

C. Public health engineers should be employed by health departments to supervise the technical work under their jurisdiction in this field, and promote harmonious coöperation with the engineers in the water department in their portion of the work. Wherever

a health department is unable to secure the services of an engineer, because of small size or other reasons, some arrangement should be made for the assignment of an engineer by the water department to coöperate with the local and state health departments, keeping them adequately informed, and being guided by them in general matters of policy.

IV. EDUCATION OF ARCHITECTS, DESIGNING ENGINEERS, BUILDING OWNERS AND OPERATORS, AND PLUMBERS IN THE PREVENTION AND CORRECTION OF SUCH HAZARDOUS CONDITIONS

A. The education of responsible parties in the reasons for and methods of preventing and eliminating cross-connections and similar hazards is of paramount importance.

B. The method will depend upon local conditions, and might embrace:

- Courses in medical, engineering, and architectural schools
- Direct contact with plumbers and architects
- Coöperation with building owners' associations and technical, trade, or professional societies, especially in the design, construction, and operating groups
- Magazine and newspaper articles, radio, and motion pictures
- Demonstrations by use of typical installations of dangerous connections and equipment
- Conferences with those who installed or permitted the continued use of hazardous connections
- Conferences with manufacturers of equipment embodying objectionable features
- Suggestions offered to contractors or others seeking approval of plans

V. PROTECTION OF WATER SUPPLY FOR DRINKING AND DOMESTIC PURPOSES AGAINST CONTAMINATION THROUGH FIXTURES, PROCESSING TANKS, SEWERS, ETC.

Wherever water enters a fixture, tank, or container through a pipe terminating below the surface of its contents, there exists a possibility that such contents may drain or be siphoned into the water supply pipes. In such cases, the fixture may act as a supply reservoir or stand-pipe during periods of reduced pressure. Should the fixture or container hold pathogenic bacteria, as in bottom supplied instrument sterilizers in hospitals, or chemical poisons, as in many tanks and vats in factories, such submerged inlets present real hazards to the safety of the water supply. Reduction in pressure and conditions of negative head (vacuum) are not at all uncommon in water systems of hilly communities and in buildings, particularly on upper floors. They may be caused by many conditions, such as (a) shutting off the water pressure for repairs, (b) heavy draughts of water on lower floors, (c) breaking of pipes, (d) aspirator or sucking action of rapid flow in main pipes past branch connections, (e) use of fire engines in neighborhood, (f) cutting off water pressure to reduce flooding during stoppages in sewer pipes.

The existence of overflow connections, such as commonly found in bath tubs and lavatories, is insufficient protection because often the fixture contents may rise high enough to submerge the inlet in spite of such overflow connections, or stoppage of the drain pipe may permit sewage from higher levels to back up into the fixture through the overflow.

Wave action in containers may cause intermittent submerging of the inlet. Owing to the possibility that water may be drawn up in a miniature water spout if the inlet be near the surface, though not actually submerged, the inlet should be well above the highest level to which the fixture contents may possibly rise.

Circulating contents of fixtures or tanks as in air washers, swimming pools, etc., may also present hazards through priming connections to circulating pumps, particularly if the tanks are directly connected to the sewer. In

general, all such fixtures and containers which are connected to sewer systems or may contain water bacterially or chemically contaminated, should be regarded as part of the sewer systems and no direct connection of the water pipes to them should be permitted. If, for any reason, such direct connections are permitted, as in the case of flush valves, adequate protection against back siphonage should be required.

VI. ADEQUATE ENFORCEMENT OF AN UP-TO-DATE PLUMBING CODE GOVERNING INSTALLATION OF WATER SUPPLIES, FIXTURES, AND DRAINAGE SYSTEMS

A. Even in progressive and well managed cities, too frequently the plumbing codes are antiquated and obsolete, giving but relatively little attention to health protection and to prevention of water contamination, in proportion to the importance of these matters.

B. Much new information has come to light since the older of such codes were promulgated, which should now be utilized in modernizing them and increasing the stringency of sections pertaining to the protection of health. In amending old codes or drafting new ones, attention should be given to the following considerations:

1. The failure of customary amounts of residual chlorine in drinking water distribution systems to protect against spread, through water, of amebic dysentery and possible other diseases.
2. The increasing number and variety of uses for water in industry.
3. The new types of fixtures developed for processing, storage, washing, hydraulic, and refrigerating equipment in which water is used, such as air conditioners, heat exchangers, condensers, presses, etc.
4. The trend toward higher buildings, involving greater differences in pressures and greater possibilities of creating conditions of negative head or vacuum in water pipes.
5. The premium on space above ground for tanks in buildings located in centers of cities where property values are high.
6. The increasing requirements for fire protection as congestion in urban population becomes greater.
7. The greater demands for water for special purposes, especially air-conditioning, which may make past standards for pipe sizes entirely inadequate, and may promote loss of pressure and consequently make more frequent the contamination of water through submerged inlets, particularly where the topography is hilly and buildings are high.
8. The development of new types of vacuum breakers and siphon preventers.
9. The growing inadequacy of old sewers as adjacent property is improved, causing backing up and flooding by sewage into basements.
10. The tendency to place more and more service and operating equipment below the level of the street sewer, in sub-basements of buildings in areas of high land values, thus increasing hazards of direct sewer connections of water equipment in such deep excavations.
11. The increasing use of fixtures with overflows, condensate drains, or steam vents which may be connected with sewer or waste pipes, permitting sewage contamination of fixture contents, such as soup kettles, utensil sterilizers, autoclaves, sterilized water tanks, etc.
12. The re-use of water previously used, stored, or handled in a manner which might permit it to become contaminated, in order to conserve water where increasing demands are taxing to the utmost the capacity of the plant to supply enough water during peak periods.
13. Electrolysis causing leakage in sewer pipes due to grounding of electric wires from radio sets and other electrical apparatus.

C. Administration of the plumbing code should be vested in officials having the public health viewpoint and sufficient knowledge of the health hazards involved to give adequate attention to its many highly technical health problems. The plumbing code should be enforced by the health department, through the administration and under the direct charge of a competent public health engineer, in order to assure that the public health aspects of plumbing will be given the kind of attention warranted by their importance.

Plumbing inspectors should be given training in the elements of public health as related to water supplies, in order

that they may approach their tasks in the proper way. The reasons for the requirements of the code should be explained to plumbers and to the public in order to secure the coöperation of all concerned in observing the provisions. Restriction of plumbing work to competent persons by some form of registration, certification, or licensing is essential.

D. Plumbing plans should be submitted to and approved by the proper municipal official before the building permit is issued in all new installations and before the work is done on all subsequent alterations of importance.

Emancipation of Women

I HAVE made provocative and sweeping statements, but I would not like to convey the opinion that I despair of the modern girl. I find her honest, frank, a true "sportsman," knowing how to win and how to lose, who has shed hypocrisy more completely than the corset. The revolt of youth against incompetent old age which has the stranglehold on all civilized activities is understandable and commendable. Youth must, however, remember that the environment, including all the advantages, in which they live is the result of the labours of a long line of noble men and women and must not confuse the obstructionist tactics of the old men, possessing all the power in their hands, with eternal values. In the beginning God made them male and female and these differences are biological not man made. The stability of the race must depend on the purity of the family, and this cannot be maintained by forgetting biological facts. Sex must neither be flaunted nor forgotten and the married woman who claims to have the sole right over her own body is a biological reject. Of all the effects of emancipation the mental restlessness is the most ominous, while the need for physical culture and instruction on diet and hygiene are pressing. In my judgment a reorientation of values is much to be desired, and more stress should be laid on those which are spiritual.—Geoffrey W. Theobald, M.D., Some Effects of Emancipation on the Health of Women, *J. State Med.*, XLIV, 6 (June), 1936.

EDITORIAL SECTION

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SYLVATIC PLAGUE

WE have published in another column the Report of the Sylvatic Plague Committee. The use of the term *sylvatic* seems to us to be open to criticism. In the report of the committee we are correctly told that Dr. Jorge proposed the term *peste selvatique*, which would be "selvatic plague" in English. It is notable, however, that in his paper presented to the Comité de l'Office International d'Hygiene publique, the spelling *selvatique* as well as the spelling *silvatique* is used. The headings of the paragraphs are invariably spelt *selvatique*, and it does not seem that the spelling *silvatique* is accidental or a typographical error. Jorge calls attention to the fact that there is a type of plague which rages among wild animals occupying desert-like territory. The term *selvatic* has been accepted by Stallybrass and also by Wu Lien-Teh, who in his latest volume, *Plague* (1936), discusses the use of the word at some length. He says ". . . selvatic plague is dangerous to man only when he invades the remote endemic areas populated by wild rodents." The committee calls attention to the review[1] of the Memorial Volume, 1912–1932, edited by Wu Lien-Teh, in which the term *sylvatic* is used. They state that there is no doubt that the English word *sylvatic* is the correct spelling of the word which Jorge spelled *selvatic*.

We have studied a number of dictionaries, but will confine ourselves entirely to Webster, which for years has been the standard for our *Journal;* to the Standard; and to the Oxford, which is the last word in dictionary making for the English language. We find *selva* meaning the rain forest of the Amazon. According to the Oxford, this is also erroneously spelt *silva*, and usually used in the plural. It is derived from the Latin word *silva*, a wood, forest, woodland, "commonly misspelt *sylva*" in imitation of the synonymous Greek word *hyle*. All dictionaries seem to be at one on this point. Under the word *silva* we are referred to *selva*. Under *sylvan*, one meaning is an animal, especially a bird, living in or frequenting woods. The word itself is also used as an adjective:

"belonging, pertaining, or relating to, situated or performed in, associated with, or characteristic of, a wood or woods." It may be noted here that *silvan*, also spelt *sylvan*, is the more commonly used adjectival form. Webster says *silvan* represents etymology more exactly, but *sylvan* is in more general use. We find in the Oxford the word *sylvatic, silvatic*, L. *silvaticus*, marked "rare" (dating back to 1661), "belonging to or found in woods, transf. rustic or boorish." Webster also gives *sylvatic*, derived from the Latin word *sylvaticus*, "better spelt *silvaticus*," meaning sylvan, also rude or uncivilized, Now Rare.

Without going further into the derivation, proper spelling and proper use of the word, we wonder whether the introduction of a new term is wise, and especially one over which there is room for criticism. We have seen that the best authorities dislike the spelling *sylvatic*. It is not the term proposed by Jorge, apparently the originator of the entire idea. It is not the spelling accepted by authorities on plague, by Stallybrass, or by Wu Lien-Teh, who incidentally is an exceptionally good linguist. We do not know who wrote the review in the *J.A.M.A.* referred to, but there is no discussion of the spelling *sylvatic*, and no evidence as to whether or not the reviewer made a study of it.

The term, whatever its correct spelling, has been applied to a type of bubonic plague found among wild rodents, and is used to differentiate the disease as found in them and as transmitted to man, from the ordinary, well known type of bubonic plague carried by "domestic" rodents, among which the rat stands preëminent. Is it not unfortunate to introduce a word which we have not been able to find in any medical dictionary nor in any English dictionary as applied to plague? As mentioned by the committee, the term has not met with unanimous approval among health officers. The report states that this type of plague is zoölogically and geographically different from the plague of the Middle Ages, but just the same it seems to be bubonic plague, whether or not it differs in some respects from the classic disease. Would it not be better simply to call it wild rodent plague, which is in accordance with the description given by Jorge and the actual words which he uses?

REFERENCE

1. Review of *Memorial Volume Manchurian Plague Prevention Service 1912–1932*. Edited by Wu Lien-Teh. *J.A.M.A.*, 105, 7:535, 1935.

OCCUPATIONAL DISEASE CONTROL

DUST has often been thrown in the public eye to becloud an important issue, but in the case of silicosis, dust has caught the public eye and directed it to an important public health problem, that of occupational disease control. Thanks to the newspapers and other publicity agencies, many people who heretofore thought of public health problems as concerned only with placarding for communicable diseases and quarantine, now realize that there is hardly any hour of the day or night when their personal health is not being assured by the efforts of public health workers whose work embraces the whole field of preventive medicine entailing close coöperation with the general practitioner and all agencies concerned.

The view of the public health worker engaged in occupational disease control extends beyond diseases caused by dust, now occupying the foreground of the picture, and includes the entire panorama of the occupational disease landscape.

Fifteen million persons are gainfully employed in manufacturing and mechanical industries and extraction of minerals in the United States. This large group, which is of tremendous importance to the welfare of the nation, spend nearly a third of their adult lives in occupations of which more than 900 are potentially hazardous to health. Numerous investigations of the U. S. Public Health Service, other health agencies, and individual organizations and workers, both here and abroad, have established that morbidity and mortality rates are definitely higher for the general industrial population, and that certain occupations are of first importance as factors in the causation of excessive sickness and mortality rates. These excessive rates not only affect the industrial population but increase the rates of morbidity and mortality of the general population. The life expectancy of industrial workers is several years less than for those otherwise employed. Age for age the mortality rate for the industrial worker has been shown to be from one and one-half times to more than double the rates of the non-industrial worker. Tuberculosis rates are much higher in the industrial group and add to the cases in the general population; pneumonia rates are more than twice as high, and degenerative diseases show rates two or three times as high in the industrial group. It is concluded that while hereditary and innate differences play some part, the most important factors are the conditions incident to industrial employment such as toxic gases, dusts, specific occupational poisons, extreme temperature variations, and numerous other industrial health hazards.

The control of health hazards in working environment constitutes a public health problem of the first magnitude. Most of these hazards consist of exposure to materials injurious to health, and though numerically a larger proportion of these workers are exposed to materials, other than dusts, which affect their health, excessive exposure to quartz dust, with its resultant silicosis, is today recognized as the most serious of the occupational diseases.

Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service,[1] brings out clearly the duty of public health officials in regard to their responsibility toward this problem and says we must " focus our attack toward the goal of eradication (of tuberculosis) upon, first, the young woman in industry or young mother; next, upon the worker in the dusty trades which form the background for many an unpublicized ' Gauley Bridge ' disaster. . . ."

Public health officials have long recognized the importance of occupational disease control as one of the fundamental factors underlying any public health program. Of what use will our prenatal, child hygiene, or communicable disease control programs be if we do not continue to safeguard the worker's health in his environment.

Aside from effects on health, the economic implications are tremendous, for these conditions affect the earning capacity of the adults who are frequently the support of the family. Industry is burdened with tremendous costs for compensation; claims for silicosis alone are written in millions.

Occupational disease can be prevented. Industry cannot do it itself and no agency other than the public health authorities is organized or constituted to undertake it.

The State and Provincial Health Authorities of North America adopted a resolution stating that occupational disease prevention should be an integral part of the public health program. The American Public Health Association passed a similar resolution,[2] the Presidential Address containing specific recommendations for the inclusion of an occupational disease control program in public

health activities,[3] and recently the American Medical Association passed a resolution to the same effect. During the last few years articles by health authorities have appeared in various technical journals stressing the necessity and importance of this work, and that it is being undertaken by departments of health as part of their public health program.

It is essential that all of the public health phases of the problem be kept together just as in other public health measures, such as the epidemiology, survey and study of the working environment, and the necessary regulatory and enforcement measures.

The provision of funds for occupational disease control through Section VI of the Social Security Act created an immediate demand from health officers for appropriations to inaugurate and enlarge their occupational disease program, and permitted a concerted attack along the entire front of the occupational disease line by departments of health in 19 states and large municipalities.

Many of these states have taken advantage of money provided by federal funds for training purposes, and have sent their personnel to receive special training in problems of occupational disease control in a course given by the U. S. Public Health Service at Washington. These men received an intensive course of lectures and demonstrations, field and laboratory work, and will return to their respective health departments more capable of attacking the particular problems of occupational disease control in their own states. It is planned to continue these intensive courses, and to augment them in particular cases with special training at some of the universities where courses in the various phases of occupational disease control will be given.

We may now expect, in the not too distant future, to see the trend of silicosis and other occupational diseases approach the minimum residual as in typhoid and diphtheria.

REFERENCES

1. Parran, Thomas. Health Security. *A.J.P.H.*, 26, 4:329 (Apr.), 1936.
2. Resolution on Occupational Environment. *A.P.H.A. Year Book*, 1934–1935, p. 57.
3. Emerson, Haven. Public Health Awaits Social Courage. *A.J.P.H.*, 24, 10:1005 (Oct.), 1934

EDWIN OAKES JORDAN

IT is with the sincerest sorrow that we record the death of Edwin Oakes Jordan on September 3, 1936. Of rugged New England stock, he was educated at the Massachusetts Institute of Technology and was one of the earliest and most distinguished of Sedgwick's pupils.

After obtaining his Ph.D. at Clark University, he went to the new University of Chicago with the group from Clark that had faith in Harper and his educational ideas. All of Jordan's academic career was passed at Chicago. Here he built a department of bacteriology in which graduate instruction was emphasized. The roster of men and women teaching in universities and colleges and engaged in public health laboratory work, trained wholly or in part under him, is impressive. He was given the honorary degree of Doctor of Science by the University of Cincinnati in 1920.

Jordan's scientific work began immediately after his graduation from the Massachusetts Institute of Technology in 1888. He was in the group working under Sedgwick and Drown in the Massachusetts State Board of Health. Those were the days when bacteriologic technic was in its infancy and gelatin

plates were literally "plates" but Jordan's first publications in the almost forgotten *Technology Quarterly* for 1889 and 1890 show evidence of the same careful work that characterized the articles of later years. His interest in sanitary bacteriology aroused at this time was maintained throughout his nearly 50 years of active work. During the Chicago Drainage Canal suit, Jordan and his associates accumulated an immense amount of valuable data on stream pollution and the factors influencing the growth or disappearance of bacteria in streams. His classification of water bacteria made at that time, stands today. His scientific papers cover many fields of bacteriology. These range through early work on bacterial enzymes, milk and food bacteriology—particularly that phase dealing with food poisoning; a series of papers dealing with the bacteriology of influenza prepared under his direction and including his own contributions dealing mainly with the epidemiology of the disease and with the "influenza" group of bacteria; an extensive study of the paratyphoid group of organisms based on an unparalleled collection of cultures from all parts of the world. These studies on the paratyphoid group are representative of all of Jordan's scientific work. He was meticulous in his laboratory technic. Constant repetition, frequent and careful observation, untiring patience in solving laboratory problems, were the characteristics which produced data of indisputable accuracy. His scientific papers written in clear, concise, and faultless English can well serve as models for the rising generation.

In addition to laboratory investigations, the field of epidemiology was always an attractive one for him. His report on typhoid fever in Winnipeg is a classic and was the precursor of many signed and unsigned reports of epidemics, particularly of typhoid fever. Here again, his analytical mind and unwillingness to draw conclusions except from sufficient data are as prominent as in his scientific studies. As an epidemiologist he was in the front rank.

While not a fluent extemporaneous speaker, Professor Jordan's addresses and classroom lectures were clear and logical and were always carefully prepared and as carefully presented. No student could leave one of his lectures without a clear picture of the subject under discussion. Jordan contributed to bacteriological education through a readable and useful textbook on bacteriology designed particularly for students. First published in 1908, this has passed through eleven editions under his skillful supervision.

In addition to his work as teacher and investigator, Dr. Jordan found time to act in a variety of advisory capacities. He served for a number of years as a member of the International Health Board of the Rockefeller Foundation and, later, on the scientific advisory board when the International Health Division of the Foundation was formed. He was a member of the board which recommended drinking water standards to the U. S. Public Health Service. During the World War he was in charge of one of the laboratory cars of the American Red Cross and studied meningitis in several army camps. Much space would be required to list other activities of this sort.

Since joining the Association in 1899, Jordan has been truly an active member, his main interests naturally centering about the Laboratory Section. He was a member of the group which formed this section and served it as well as the Association in various capacities. When the Epidemiology Section was formed in 1929 he was one of its earliest members. He served on the Executive Board 1924–1925, on the Governing Council 1925–1930, and was Treasurer of the Association 1928–1929. In 1934 he received the Sedgwick Memorial Medal.

He was also concerned with the formation of the Society of American Bacteriologists and of the Epidemiological Society. As a co-founder and co-editor of the *Journal of Infectious Diseases* and as editor of the *Journal of Preventive Medicine* he had opportunity not only to publish some of the best scientific contributions but also to advise and encourage younger contributors.

Modest and retiring almost to a fault, he can well serve as an example of one who has attained eminence in his profession without the aid of the self advertising regarded by too many as necessary for reaching scientific prominence. As a companion he was a delight because of his wide reading, marvelously accurate memory, and his acquaintance with scientific men throughout the world. He will be missed by his contemporaries, his former colleagues, and the host of students who have received training and inspiration from him.

AN UNPAYABLE DEBT

THERE are few things more interesting than going over the old lists of members of a scientific association. They correspond closely with the papers found in old volumes of transactions—always a source of interest and often of information. Too often we forget what the older members of an association have done, and often the younger members are likely to regard the old ones as back numbers.

We owe an everlasting debt of gratitude to our old members for what they did to determine the character of our Association and for building a firm foundation on which it has stood now for nearly 70 years.

Therefore the movement to recognize a group of the older members is particularly gratifying. The Committee on Fellowship and Membership has been given authority by the Executive Board to give some special recognition to those who have been affiliated with our Association for 40 years or more. This will take the form of a certificate which will be presented by the President of the Association as a feature of the banquet at our coming meeting in New Orleans.

There are only eight such members. We would that there were more, but this desire does not lessen in any degree the honor we pay to those who are still with us.

It is almost impossible not to recall the past on an occasion of this sort. One of our number, Dr. J. H. Kellogg, became a member when Elisha Harris, a man much respected by all, was President. Another, honored all over the world and who is justly regarded as the foremost city health officer of all, is Dr. Charles V. Chapin, of Providence. He joined under the presidency of Henry P. Walcott, a noted hygienist of Massachusetts. Daniel W. Mead, the well known professor at Wisconsin, joined under Samuel H.. Durgin. Jesus E. Monjaras became a member under that grand French Canadian, Frederick Montizambert. Miss Marion Talbot became a member under another delightful French Canadian, Emmanuel P. Lachapelle, of Montreal. George A. Soper became a member under William Bailey, of Kentucky, while Robert S. Weston, and William C. Woodward joined under the presidency of that noted Mexican hygienist, Eduardo Liceaga.

What memories these names bring to all who are interested in our Association and its history! Along with that group comes Henry B. Horlbeck, President of our Association on its 25th anniversary, who in season and out of season

urged the study of yellow fever. One cannot but regret that he could not live to see the triumphs which have been achieved in regard to this disease. Close along with him was Henry D. Holton who, unknown to the majority of members, frequently gave out of his private purse to help the Association. A little later came Walter Wyman, for many years the distinguished Surgeon General of the Public Health Service, and just next, Carlos J. Finlay, of Cuba, who showed his wonderful powers of observation in selecting the mosquito which has been shown to be the carrier of yellow fever, and who furnished the eggs from which the mosquitoes used by Walter Reed and his associates were reared. If we have members who do not know the history of our Association, let them read.

The length of time which these eight have been members of our Association is an inspiration. There is no question that they have found the Association useful to them and worthy of their allegiance. All have gained the highest distinction in their respective professions. They have reaped success as well as honor. What they have gained from our Association through their years of experience is open to every member. Will not their example be an inspiration to those who are now with us or who may join our ranks later?

Every member of our Association joins with our officials in doing them honor and wishing for them health, long life and additional honors.

ERADICATION OF BOVINE TUBERCULOSIS

WE have repeatedly called attention to the good work of the Bureau of Animal Industry, U. S. Department of Agriculture, in the eradication of bovine tuberculosis. This department of our government has been unceasingly active and very efficient under the direction of the Chief of the Bureau, Dr. John R. Mohler.

A recent announcement states that Nebraska is the 40th state of the Union to be certified as a modified accredited area. That a disease which has been such an economic scourge and menace to human health has been brought under control to so great an extent is a matter for congratulation not only to the department which has been responsible for the work, but to the cattle raisers and the consumers of milk. The success which has attended efforts in this direction speaks well for the soundness of the ideas upon which the campaign for eradication has been based as well as for the energy with which it has been carried out.

PUBLIC HEALTH EDUCATION*

The Last Call—See in the September issue of the *Journal* announcements of Public Health Education Headquarters at New Orleans.

If you act quickly you may yet have a share in that service to other health agencies.

Send! Come! Bring!—*Send* for Public Health Education Headquarters at New Orleans, as explained in the September issue.

Come to New Orleans if you have any part in doing health education, or in handling health education materials.

Bring with you questions you want answered; good ideas gleaned from your year's work; copies of your printed or mimeographed educational material or plans of work to be placed on the "Free" or "Give-away-table"; and a pocket display in two parts: (a) a concise but complete outline of what you have been doing; and (b) a sample set of the material you used.

Motion Pictures at New Orleans—Last year motion pictures were scheduled for display at Health Education and Publicity Headquarters. This turned out to be quite unsatisfactory.

So at New Orleans the *movies will be put on at the close of regular sessions of the Public Health Education Section.*

If you have a 16 mm. picture to be shown please quickly inform Evart G. Routzahn, 130 E. 22d St., New York, N. Y.

Do not send film to New York. Ship to Dr. C. C. Dauer as noted elsewhere under "Shipments to New Orleans." Or, deliver to Mr. Routzahn at Health Education and Publicity Headquarters.

It is hoped that every exhibitor will supply a mimeographed sheet giving a synopsis of his picture and information as to its production, cost, use, etc.

Shipments to New Orleans—Packages for Health Education and Publicity Headquarters should arrive in New Orleans by Friday, Oct. 16; should be prepaid; should be addressed as follows:

> For Health Education and
> Publicity Headquarters
> Dr. C. C. Dauer
> Tulane University
> 1430 Tulane Ave.
> New Orleans, La.

Deliveries may be made in person at the opening of the convention if you send word to that effect. Otherwise late deliveries would disrupt the arrangement of displays.

A Sheet of Information—A mimeographed sheet of information is desired with every display at Health Education and Publicity Headquarters, and with every movie shown at close of Public Health Education Section meetings. This sheet would add much to the interest and value of any display.

Please describe the display, and

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

answer all the questions you think anyone might wish to ask about what you are showing.

Return Packing and Shipping—If you wish your exhibit returned, and if you will not be represented at New Orleans, please be very sure to arrange for re-packing and shipping. This can be done for you at small expense.

Specific information as to the disposal of your display is requested.

Three Important Events—At this time we may no more than bulletin three events of much significance to public health education.

A *Transparent Woman,* mate to the Transparent Man, produced by the German Hygiene Museum, has been brought to this country by S. H. Camp, manufacturer of Jackson, Mich. The first and only female transparent model is now being shown at the New York Museum of Science and Industry preceding a wide tour of the country.

Dr. Otto Neurath, known widely for his development of pictorial symbols for the presentation of statistics, is to be in this country for a period of several months. Dr. Neurath will attend the New Orleans convention.

The New York Exposition, announced for 1939, has at least encouraged the idea of having an adequate public health display.

Additional information about the plans will soon be available.

Publicity for Public Health Nursing—The August, 1936, issue of *Public Health Nursing* (50 W. 50th St., New York, N. Y. *35 cents*) includes a group of articles on publicity, interpretation, or education, whichever you choose to call it.

Anne M. Goodrich, Henry Street Nursing Service, tells about "Making a Movie for a Visiting Nurse Service." The experience reported offers working suggestions for other cities and other kinds of health work. Miss Goodrich thus emphasizes the value of the motion picture:

> As I have been giving publicity talks explaining the visiting nurse service this year, both without showing the film and in conjunction with its presentation, I have been very forcibly impressed with certain facts. When the talks to groups (ranging from one-half to one hour in length) have been made without the showing of the film, the questions asked by members of the audience have shown that they did not have a clear understanding of points which I had stressed. It was especially difficult to make them realize that nurses not only go into the poorer homes where the patients cannot afford to pay, but also go into the better type of homes where the patients pay for the service, either in full or in part. On the other hand, when the picture has been shown there have usually been even more questions from the floor, but these have related to points brought out in the talk and have shown almost without exception that there was a clear grasp of the objectives of the nursing service—this even though the time allotted to the entire program was only half an hour and all but ten minutes of this time was taken up by the showing of the picture. . . .

Elma Rood, associate in charge of health education, T.V.A., in "Community Health Education in Communicable Disease Control," an article to be read as a whole, suggests "steps for achieving real community planning for a health department program for the control of communicable disease."

"What Is Wrong with This?" quotes a local nursing service news report of a meeting of its supporters. On another page are listed 13 ways in which the news story is "wrong."

The issue includes "Publicity for Your Nursing Service," by David Resnick; "The Movie Problem," by E. S. Cornell; points on poster making; the use of radio (which will help advertisers much more than nursing organizations); home-made silhouette making by photography; and other articles.

Fire! Fire!! Fire!!! — Deaths through fire are akin to deaths through accidents in their interest to health agencies.

Moreover, health agencies as fallible human institutions need the stimulus of community effort to make sure that they provide maximum fire prevention for their own employees.

Hence we should have given early notice of "Fire Prevention Week," Oct. 4–10, 1936. It is not too late to do something. Write to National Board of Fire Underwriters, Public Relations Department, 85 John St., New York, N. Y. Ask for price list and samples of fire prevention material, and copy of *Safeguarding America Against Fire*.

Health Speech Contest—It has been done now and then, but we have long wondered why more is not done toward getting young people to voice health ideas and information.

Now that lively tuberculosis executive, Irma Collmer, St. Joseph County Anti-Tuberculosis League, South Bend, Ind., has gone and done it, and then told all about it.

A Christmas seal speaking contest was put on with the coöperation of the public speaking departments in the senior high schools of the county.

One of the first assignments given each student enrolling in speech classes for the fall term is a 5 minute talk on the Christmas Seal and its relation to the work of the St. Joseph County Anti-Tuberculosis League. The League supplies to each of these students an abundance of reference material, such as pamphlets on the nature and treatment of tuberculosis, and material dealing with the importance of early diagnosis and the history of the Christmas Seal. Reports of national, state, and local activities are also provided so the students have a good background of knowledge from which to select the subject they wish particularly to stress. They are also encouraged to visit the League office and to follow any leads they have relative to human interest stories.

The first week in November a committee composed of high school faculty members listen to all the talks and select the best 10 for the finals. Before the finals these 10 students are given an opportunity to polish up their talks and to gain experience in presenting them by appearing before the different sponsor rooms in the school. Thus, everyone in the high school will hear at least one of these talks and thereby become Christmas Seal conscious.

The finals are scheduled for the middle of November. The League appoints 5 judges to select the 3 prize winners. These judges are always representative and well known citizens such as the superintendent of schools, a minister, the president of the Tuberculosis League, one of the county judges, the mayor, and some representative from the P.T.A.

The prize winner gives his talk over the local brodacasting station in addition to receiving a cash award of $1. The second prize is a cash award of $.75 and an opportunity to speak before one of the local luncheon clubs such as Rotary or Kiwanis. The third prize winner receives $.50 and an engagement before some church group.

The following basis for scoring is used by the judges:

1. Material (20)
   - Knowledge
   - Judgment
   - Organization
   - Interest
2. Language (20)
   - Choice of words
   - Grammar
   - Sentence Structure
   - Pronunciation
3. Voice (20)
   - Quality
   - Inflection
   - Distinctiveness
   - Rate
   - Force
4. Communication (20)
   - Directness
   - Conversational
   - Response to audience
   - Confidence
5. General Impression (20)
   - Ease
   - Posture

The purposes of the contest are:

1. They give the students a fundamental knowledge of tuberculosis and indirectly educate the teachers and parents who are for the most part interested in the talks the children are preparing to give.

2. They afford an opportunity for newspaper publicity—announcements of the contest, the names of the participants, the names of the judges and the prize winners are all good newspaper copy. Pictures of the 3 prize winners from each high school are always run. The prize talk is usually published in the monthly school magazine and is also given before the general assembly of the high school.

3. They create a speakers' bureau. Students who participate in the finals serve as members of a speakers' committee subject to call before such groups as Parent Teacher's Associations, luncheon groups, missionary societies, and other clubs invited to ask for Christmas Seal speakers.

4. They make a close tie-up between the Tuberculosis Association and the schools.

Last year's prize speech is given in full.

In *Bulletin*, National Tuberculosis Association, 50 W. 50th St., New York, N. Y. Sept., 1936.

Libraries and Social Hygiene—A "Fourth Annual Library Number" of *Journal of Social Hygiene* continues both a demonstration and a service. A service to interested libraries, of which there are many, and a demonstration of coöperation by a national health agency.

Articles discuss the use of social hygiene material through the National Health Library, a state library, library of a social hygiene society, a large city library, a rural library, a rural church, a university library, a school of nursing, and medical libraries.

The issue includes numerous book reviews and bibliographies, and "Social Hygiene Bookshelf for 1936."

In *Journal of Social Hygiene*, 50 W. 50th St., New York, N. Y. June, 1936. *35 cents.*

From the Inside Looking Out—Objections to the use of those weasel words, "social disease," have several times been voiced by Marlen Pew. For years Mr. Pew has been editor of *Editor and Publisher*, the chief journal of journalism. On his personal page, "Shop Talk at Thirty," he said May 2, 1936:

> The Public Health Service has just completed at Washington an annual conference of federal and state public health officers, one session of which was devoted to a symposium on the important subject of syphilis. A striking fact in this connection is that a number of metropolitan newspapers for the first time used the name of the disease in editorial discussions and news reports. It was fresh proof that newspaper editors generally recognize that the control of syphilis is important. No newspaper would refer to smallpox as an "eruptive disease." Yet it is just as indefinite to refer to syphilis as a "social disease" and this general practice, still followed by the major news associations and newspapers in general, interposes a real handicap to efforts of health authorities in securing the public support they should have.
>
> *Washington Daily News* carried an editorial on the subject, in part as follows: "State health officers, at an annual conference in Washington, devoted a full day to discussion of the dread, widespread disease of syphilis. Here are some of the things the health officers said":

This was followed by a half dozen factual paragraphs.

Health Education in August Journal—*American Journal of Public Health*, August, 1936, includes the material noted below.

In "Modern Trends in Nursing Education," by Goodrich, note paragraphs on pages 764 and 765.

"Community Public Health Nursing in the Philippine Islands," by Dunham, pictures conditions and needs and how they are met (pages 771–777).

A thought stimulating paragraph by Henry Thomas Burke (page 785) in "Integrated Control of Occupational Diseases," by Sappington.

"Use of the Terms 'Sterile,' 'sterilize,' and 'sterilization'" (page 806) is addressed to advertisers, but may be useful to health writers and speakers.

"Venereal Diseases" (editorial, page 823) is preachment against preaching versus action.

Note, "Toward Preserving Public Health," by Patterson (page 841).

We hope that "Things in New Orleans You Will Want to See" (pages 843–847) will make more sure that you will be present at the 1936 meeting of the American Public Health Associa-

tion, and that you will use the hotel reservation blank on page 849.

New members of Public Health Education Section are listed on page 853.

Three health campaigns are mentioned on pages 856–857.

Christmas Seal Sale Publicity—It is announced that the publicity material for this year is being supplied by National Tuberculosis Association in 10 sections as follows:

Newspaper Features; Cartoons; Daily Reminders; Magazine Articles and Advertisements; Radio Scrips; Club and Radio Talks; Fillers (for Newspapers and Radio Stations); Sermon; Stunts and Suggestions; Miscellaneous. This last section contains 9 items among which is "Statistics—Up to the Minute," a recent compilation of data briefly worded, and should receive wide distribution among newspaper editors and speakers. . . .

Civil Service Exam in September—An "open competitive examination for field instructor in public health education" was held Sept. 19 for the Division of Public Health Education, State Dept. of Health, Albany, N. Y. The examination was conducted by the State Department of Civil Service.

Duties: Under direction, to supervise public health education programs with leaders of groups such as 4-H clubs, Boy and Girl Scouts, Home Bureaus, Parent Teachers' Associations, and other similar organizations; to promote and direct projects and programs in public health education in coöperation with district health officers, public health nurses, local health officers, and physicians; to address meetings and conferences on methods in public health education, and to devise new methods of disseminating accurate information on this subject; to prepare news releases, health courses, reports, and other publications; and to do related work as required.

Minimum Qualifications: Candidates must meet the requirements of one of the following groups: Either (a) graduation from a college or university of recognized standing with specialization in journalism or community organization and 3 years full-time experience in community organization and public health education involving the planning and execution of field health campaigns together with the direction of the work of others, including the preparation of material for use in newspapers, radio, exhibits, and motion pictures, at least 1 year of such experience preferably shall have been in the employ of a state, county, or municipal health department, and shall have included or been supplemented by 1 year of experience in newspaper work; or (b) a satisfactory equivalent combination of the foregoing education and experience. Additional credit will be given in rating training, experience and general qualification requirements for completed courses in public health or other college work which bears directly upon preparation for work in the public health field.

Subjects of Examination:

Written examination on the knowledge and skills involved in performing the duties, relative weight	4
Training, experience and general qualifications, relative weight	6

Please send other civil service examinations in health education, and question lists for the same. We would like to display at New Orleans.

Hygeia, September, 1936 — Here are titles and topics, source material, and reprint material. *Hygeia*, 535 N. Dearborn St., Chicago, Ill.

Health examinations before marriage (what and why) . . . Undulant fever (origin and spread) . . . Uses of snake venom . . . Safety in the home . . . For the school lunch box . . . Vaccination of Napoleon's army . . . The physical superiority of college students . . . The play way to health and long life . . . William Crawford Gorgas . . . Home study . . . The passing of disease (30 years of medical progress) . . . Balancing the physical basis ("insurance" value of preventive medicine) . . . What you should know about cancer . . . Typhoid bacilli . . . Food, drug and cosmetic racketeers . . . The Martin Family vacation (testing the well; shallow wells and rural nurses) . . . New books on health . . . Healthgrams . . . Questions and answers.

In "School and Health":

What is adolescence? . . . Health lessons from real situations (the flood in Lowell, Mass.) . . . Planning your safety program in

September . . . Art in the service of health (the first of a series).

They "Say It With Pictures"—A full page of reproductions of newspaper clippings illustrates how Red cross chapters utilize varied activities and circumstances to provide pictures and text for newspaper use. See *Red Cross Courier*, Washington, D. C., Sept., 1936.

We would welcome similar specimens from health agencies. Good use could be made of such contributions for display at the Annual Meeting, and in this department of the *Journal*.

When Dietetics May Be Fun—Minnesota 4-H Club boys were asked what they liked to eat. *Farmer's Wife* presents the results for their girl readers. The article talks about "good eats," but a similar approach might be made through other groups of young people, and the "findings" could be served with an added dressing or sauce of dietetic application. It is one way to unconventionalize our health teaching.

Probably our fellow member, Carroll P. Streetor, *Farmer's Wife*, St. Paul, Minn., will send upon request a copy of this September, 1936, issue, containing "Girls, Here's What the Boy Friend Likes to Eat."

A Talking Slide Film—A new slide film is announced under the sponsorship of the American Social Hygiene Association.

The special subject of the production is syphilis, and the title is For All Our Sakes.

Attractively phootographed, and accompanied by a voice recording of unusual variety and vividness, this new presentation should be decidedly effective as a means of informing the lay public, which it is particularly designed to reach.

The film and record (disc) have been prepared for use with any standard "talking slide" machine. In general this lecture may be shown to any audience at any time simply by telephoning the Western Union Telegraph Company, which handles the equipment and operation of such productions in the principal cities of the country. The Company's inclusive charge for this service is $10 per showing. The production can also be leased directly through the association by the day, week, month, or year. For terms and other details inquire at the association's office at 50 West 50th Street.

"Health Education for 4-H Clubs"—A 7 page mimeographed bulletin with this title has been issued by Coöperative Extension Work, Ithaca, N. Y. The pamphlet lists 3 steps in planning a county 4-H health program. Topics suggested for 1936–1937 are divided between discussion topics, and demonstration-participation topics.

An outline of teaching methods precedes paragraphs descriptive of the suggested topics.

Added is a page of "topics suitable for discussion with leaders and other adults."

The pamphlet is a coöperative project of the Public Health Education Division of New York State Department of Health. Address W. J. Wright, State Club Leader, Ithaca, N. Y., for a copy.

"Owing to the Increasing Demand"—What is your policy as to requests for printed matter from teachers and individuals, not health workers, living outside your city or state? The mention of publications in radio broadcasts, and the numerous mimeographed and printed reference lists which include mention of local and state educational material has increased the out of bound requests for single copies and quantities.

The Massachusetts Department of Public Health sends the following mimeographed statement:

In response to your request we are sending sample copies of the pamphlets desired, to be used for reference purposes. Owing to the

increasing demand for our printed material it is impossible for us to send additional copies outside the state. We would be glad to have these publications reproduced by local organizations wishing to use them if credit is given to this department.

Your own state department of health would probably be glad to supply pamphlets on health, or they may be obtained from the U. S. Public Health Service, or the Children's Bureau at Washington, D. C.

Why Not in the U. S. A. and Canada?—Something better than dolls in exhibits is mentioned in a letter from China, and illustrated in Sept., 1936, issue of *American Journal of Nursing*, 50 W. 50th St., New York, N. Y.

I was very much interested to read in one of the issues of the *Journal* of a nursing exhibition and especially of dolls representing the history of nursing. We tried a similar project but talent failed sufficiently to alter any dolls we could find, so in the end we made plasticine models. Some of the limbs were sadly out of proportion but we felt that on the whole the models could be voted a success.

Dolls in displays are likely to be distractingly "cute," or unconvincingly doll-like. Desirable substitutes are the plasticine figures (or other material used in the schools), or mounted and cut-out photographs or sketches.

They Believe in the Health Department—Says Dr. J. O. Nall:

Within recent months I have had occasion to talk with a number of representative citizens concerning the full-time county health department and the activities of its personnel—health officer, public health nurse, and sanitary inspector. I have made no special effort to pick the people with whom I talked, other than to select persons whose family life or business would naturally bring them into contact with the county health workers.

Among those with whom I talked were a farmer, a dairyman, a country store keeper, a widowed mother with three children in school, a rural school teacher, a restaurant operator, a policeman who had killed several dogs suspected of being mad, a soda fountain clerk, a woman suffering from active tuberculosis, and a citizen of a county which does not have a full-time county health department. One general question was put to each of them: "Have you or your family benefitted by the full-time county health department; if so, how?" Some replied that they could not think of any special benefit other than that their children had been given "shots" at school against diphtheria, smallpox, and typhoid fever. Others immediately mentioned activities of the health authorities from which they had derived definite and specific benefit. These included the 10 enumerated above.

Then follows the testimonies of "The Farmer," "The Dairyman," "The Widowed Mother with Three Children," "The Soda Fountain Clerk," and others, as reported in *Bulletin*, State Dept. of Health, Louisville, Ky. Aug., 1936.

The Farmer said:

"I was opposed to smallpox vaccination until the health department was organized here. I had refused to have my children vaccinated because I couldn't see that vaccination made any difference. Then, one day, the health officer made a special trip to see me and talked to me the better part of the afternoon, explaining the history of smallpox and smallpox vaccination and showing how it had controlled the disease. He convinced me that I knew nothing about smallpox or vaccination against it. I decided that if the health officer could afford to spend so much time talking to me about vaccination, I could afford to change my mind." He added, with pride, that he had since convinced several of his neighbors of the need for general vaccination against smallpox and helped to secure the vaccination of every school child in his district. . . .

Has anyone else carried out this fine idea?

DATES AHEAD

Use past events to talk for you, as well as the present, and the future.

National historical dates and local dates of many types offer chances for dignified tie-ups with health ideas or health organizations. Editors will welcome your good ideas, especially when they bring new angles on some

of the over-worked dates which cannot be ignored.

Fire Prevention Week, Oct. 4–10, 1936, will come a year from now at about the same time. Make it a date even if it is too late to make use of it this year. See "News Almanac for Social Work" (Community Chests and Councils, 155 E. 44th St., New York, N. Y. *50 cents*) for specific suggestions.

Columbus Day, Oct. 12, may be a time for reporting "discoveries" in the health field, possibly in local conditions as suggested in the "News Almanac." How about a "Health Columbus" in your city?

Association of Junior Leagues (see the "Almanac") birthday, Oct. 18, may be a time for some testimony to the help to local health activities given by the local league. Or, a time to suggest that the league consider some health education activity.

Most important of all will be the sessions of Public Health Education Section at New Orleans, Oct. 20–23, 1936.

Girl Scout Week, Oct. 25–31, includes Saturday as Health Day.

The 1936 Mobilization for Human Needs includes numerous national publicity features intended to support the local chest money raising activities throughout the country. In most cities health agencies have a definite stake in these campaigns.

American Education Week, Nov. 9–15, offers an opportunity for health agencies to participate.

Red Cross Roll Call starts Nov. 11 when Red Cross health activities should receive special attention.

Annual celebration of the founding of The National Committee for Mental Hygiene, Nov. 12, is a time for accenting the new day for the mentally sick. Is your city doing its part?

The unlucky day made "lucky," Friday, Nov. 13. The "Almanac" suggests a human interest story about some success in health service, begun or ended on this day.

National Book Week, Nov. 15–22, may be a time for playing up the health service of books, or the health books available at the health department, or the health books to be found in different local libraries, or the giving of health books to institutions and centers where they might get a wide reading, or a display of health books at the public library or in a book shop.

The first local organization of what later became known as the Y.W.C.A. was founded Nov. 24, 1858. Another opportunity for health agencies to devise ways of expressing appreciation of the health activities of a local organization.

Thanksgiving Day, Nov. 26, suggests contributions toward a healthful Thanksgiving, or publicly expressed thanks for gains in health conditions and health activities.

Christmas Seal Sale, opening Nov. 26, means both money raising and health education.

See the back pages of this issue of the *Journal* for list of conventions and other events, many of which offer opportunities for local health education purposes.

If you have suggestions on any of the above please write to us. If you seek suggestions, or if you don't fully understand any statement in the foregoing, please write.

BOOKS AND REPORTS

An American Doctor's Odyssey—*By Victor Heiser, M.D. New York: Norton,* 1936. 544 pp. Price, $3.50.

When, on May 1, 1898, Admiral Dewey sailed into Manila Bay, he added enormously to American prestige, as well as territory to America, but he also gave to America the grave responsibility of caring for a rather heterogeneous population scattered over an archipelago extending over a thousand miles from north to south, a population which, as regards advancement in modern ideas, had slumbered peacefully for many years under Spanish rule. He gave to us a people among whom many of the notable scourges of the world were endemic. Here was a laboratory for investigation and rich ground for field trials. Without disparaging the work of sanitarians and scientists in other parts of the world, it is not too much to say that the demonstration given in the Philippine Islands stands as a monument to preventive medicine.

The man who had much to do with every phase of this regeneration is the author of this book, which is a record of his achievements. After some preparation in the immigration service of the United States in Naples, he was appointed Chief Quarantine Officer of the Philippine Islands, and later Director of Health. The officers of the American Army, upon whom this duty devolved from the military standpoint, had had little experience in dealing administratively with tropical diseases. In 1902, Drs. Gorgas and Heiser were sent to the International Congress on Medicine in Cairo, where they met officers of many nations who had experience in the administration of health in the Orient and tropics. They were met everywhere with the reiterated statement that it was a waste of time to try and sanitate Orientals, who wished to be left to their old unhealthy habits. Life was cheap in the Orient, and apparently it had not occurred to the employers of colonial labor that much money could be saved by improving the health of their employees and in lessening the death rate.

The conditions which confronted Dr. Heiser were anything but conducive to optimism—years of insurrection, discontent and discouragement, inefficient government, and a declining scale of living, with little hope for the future. Plague was rampant. The morgue was piled with dead bodies of cholera victims. Forty thousand were dying each year from smallpox. Tuberculosis caused 50,000 deaths a year. Sufferers from beri-beri numbered tens of thousands. Every other child died before its first birthday—the highest infant mortality rate in the world. There were 10,000 leprous men, women, and children. Venereal diseases were widespread. There was much insanity. The different types of malaria were everywhere. Manila was overcrowded. Six to eight slept in rooms hardly large enough for one. There was an antiquated and polluted water system built by the Spaniards, but there was no reservoir, not a pipeline, and not an artesian well. There were practically no sewer systems. The vilest class of food products was shipped into the country; perishable foods were sold from the ground; no proper inspection

of animals was made before slaughter, and diseased cattle were regularly marketed. The people were strongly imbued with superstitions and traditions, apparently contented with their lot and resigned to their illnesses. In spite of this discouraging picture, Dr. Heiser set for himself the goal of saving 50,000 lives a year.

Chapter after chapter gives accounts of how one bad condition after another was met, how one disease after another was conquered, how superstitions were overcome and hope for the future was instilled into the inhabitants of the many islands.

The head of one chapter, "Washing up the Orient," tells the story. America was literally "Washing up the Orient."

This book might well serve as a textbook on preventive medicine. A good history of each disease is given, and the methods of handling it are described. How anyone can read of the results accomplished and doubt our control over epidemic diseases, even under the difficult conditions described, passes understanding. Argument is not needed. The facts speak more loudly than language. When 300 savage Moros, fully armed, come and demand vaccination because of their observation of the freedom from smallpox enjoyed by their fellow men who had been vaccinated, we feel convinced that there is hope for any part of the world in preventive medicine.

This book would also be useful as a study in sociology. It is a demonstration that philanthropy pays dividends. By 1914, the great pestilences had been brought under control. The Filipinos as a nation were advanced in convalescence, and a permanent health organization was established.

Among the difficulties encountered, not the least were those due to various religions, a striking example of which is given in the replies of a Mohammedan chief to a medical man:

"What's your death rate?"

"It is the will of Allah that all die; some die young, some old."

"What's your number of births?"

"Allah alone can say."

"Is your water safe and potable?"

"History records no death from thirst."

"What is the hygienic condition of your village?"

"Allah sent Mahomet who proved the truth with fire and sword. Now, Lamb of the West, cease your questioning. It can do you or others no good."

The book is most entertainingly written. It contains many anecdotes, some of which test one's credulity. Certainly no story loses anything in the telling. There is Ibayat, rising sheer from the sea, surrounded by a circular rim which not even a goat could climb, and up which those trying to land must be hauled in a basket suspended by a vine, yet the inhabitants raise cattle and export them, getting them to ships by forcing them over this precipice into the water. We keep wondering how the original inhabitants and the original cattle reached this unapproachable haven!

The whole book tells the story of remarkable achievement, and demonstrates to us what can be done by knowledge put into action by an able, alert, and aggressive man backed by illimitable funds. The author has an apt way of summing up with succinct sentences which are worth pages of argument, for example: "There are very few anti-vaccinationists now in the Philippines. Most of them have died of smallpox." The Tamils, "with hardly a smile in the entire race" because of hookworm, were given successful mass treatment, and "At last the Tamil smiles."

There are certain statements which are unfortunate, especially as the book is for the general public. The author speaks of the "Pasteur treatment for hydrophobia," which will give the layman an entirely wrong impression. We

are told that the Negro has an undivided cartilage at the end of the nose, and that this peculiarity, which extends even to octoroons, is a sure test of Negro blood. The authority for this statement has not been found. It is not true of the Negro in this country. The identity of yaws with syphilis is not recognized, in spite of the successful treatment with salvarsan.

The book can be recommended from many standpoints. The interest of our readers lies chiefly in its public health aspect. Others will find in it a book of travel and adventure; still others a history of the races of the world. It is boundless in its interests; there is something for practically every class of reader. MAZYCK P. RAVENEL

Don't Be Afraid—*By Grace Adams. New York: Covici-Friede,* 1935. 188 pp. Price, $2.00.

An interesting and instructive book from the author of *Your Child Is Normal.* Fear as a protective, biological mechanism is not the crippling emotion most people conjure up at the mention of the word. Fear has its place and uses, but fear of fear has no rightful entry in our everyday psychology. Odd quirks, foibles, fads, and phobias are mental bed-fellows with intelligence, discretion, and quite often, genius. Dr. Adams lists a group of the world's famous and their less-famous parataxic reactions.

The psychologically strong are not so because they lack weaknesses but because they have overcome or used them to advantage. The bogie of superstition is born in the infancy of the individual and in the untutored, primitive emotions of the race.

The chapter on The Modern Conscience gives valuable advice which might be stated tersely—know thyself. Self-knowledge breeds respect and consideration for others and fosters understanding, tolerance, and group adjustment. Fear loses much of its paralyzing effects when brought out into the open and discussed in the simple, sane way which we have come to expect of the writings of Dr. Adams.

MAURICE A. R. HENNESSY

My Life and Work—*By Adolf Lorenz, M.D. New York: Scribner,* 1936. 362 pp. Price, $3.50.

Dr. Adolf Lorenz has written an autobiography which is interesting and at the same time most revealing. Its interest lies in the well sustained narration of the experiences of a life of accomplishment, which, starting in a humble peasant cottage in Silesia, reached its climax in the capitol city of Vienna with the title of Professor Extraordinarius, the Order of Hofroth, and world fame. Dr. Lorenz writes most interestingly and intimately of all phases of his struggle from obscurity to international prominence; but only in those chapters dealing with his early life and struggle for an education does he fill in the details of his growth and progress. The years of his professional development are painted in bold strokes and give but a vague picture of the steps by which a local practitioner of bloodless surgery became a world figure. It would seem, however, from what is revealed of the struggling boy and medical student that an alert mind, a firm determination to succeed, backed by energy and perseverance, self-confidence, and a winning personality were the materials with which a most distinguished career was built.

The revealing side of the book lies in its frank egoism and egotism. That Dr. Lorenz gave himself undue supremacy in his thoughts is evident from the very beginning of the book; that he gave himself undue prominence in speech becomes a conviction as the last word is read. That Dr. Lorenz contributed greatly to the advancement of orthopedic surgery is unquestioned.

That he was a super man, accomplishing cures that were beyond the skill of others is open to debate. Yet his words can leave no other impression than that he felt that he stood out above all others of his guild. This weakness in a really great character is demonstrated by the fact that in a book of 353 pages, only 108 of them are devoted to his early life, his development, and his arrival at his goal of professorship. The remaining pages are given over to the description of his accomplishments at home and abroad.

Dr. Lorenz in his life story reveals a very human personality. He shows himself a strong and sturdy character, who in spite of his naïve vanity, compels respect by his determination to succeed, his ability to do so, and his contributions to medical progress. That he had a deep sympathy for those physically handicapped is shown by his great kindness toward crippled children and his ever ready willingness to help them to the limit of his ability whether they were princes or paupers. That he had a strong heart is evident, for deprived of a promising career in general surgery because of his sensitiveness to carbolic acid, the then universal antiseptic, he built on its ruins a brilliant career in bloodless surgery. The life of such a man is well worth knowing. It is an interesting story of accomplishment and success in a country and in times when the low born and poor had but little opportunity for advancement, and so it has lessons to teach as well as pleasure to offer.

FRANK D. DICKSON

The Jew in Science—*By Louis Gershenfeld. Philadelphia: The Jewish Publication Society of America,* 1934. 224 pp. Price, $2.75.

One cannot merely review this book from the viewpoint of composition and content, but is rather impelled to ask, "why was it written?" The author anticipates and answers the query, by saying that it had been his hobby to collect notes on "the history of science, Judaism, and scientists." The publication of the accumulated material, however, the author warrants on the basis that "there are some Jews of high standing, in addition to non-Jews who claim that the Jew does not share or do well in the sciences."

To counteract this impression the author devotes 87 pages to The Beginning of Civilization; a Brief History of the Jewish People; Science and the Jewish Scientist until the Dark Ages; The Dark Ages until after the Death of Maimonides; Other Incidents during the Middle Ages and until the Nineteenth Century; Renaissance. The remaining 138 pages of the book are almost entirely devoted to an uncritical listing of the names of Jews, half Jews, and converts, in the various divisions of science.

The historical portion is sketchy to the point of being a catalogue of names and dates, with only thin circumlocutions to tie them together into the semblance of a narrative. The second portion would make an excellent "index expurgatorius" for an American Hitler.

There is something incongruous in a work devoted to the Jew in Science, which carries the subject beyond the late Renaissance and into the modern period. It is the boast of learned men that science is international, that its devotees form a true brotherhood, that the accidents of birth, color, race, religion, are without note in its realm. There are only scientists, not Christians *in* science, Mohammedans *in* science, Jews *in* science.

Unquestionably the scientist does not shed his innate religious and racial qualities, as he enters his "laboratory." Metchnikoff, a half Jew, half Slav, differed in his personality, and in his approach, from his Breton, Catholic,

predecessor, Pasteur, who differed radically from his contemporary, Robert Koch, the German. There is a history to be written on the influence of the racial characteristics of the scientists on the development of science. The impediment is the definition of the meaning of race, an impediment greater as it pertains to the Jew, than to say the German, the French, or the Italian.

The Jew in Science does not deal with the unique contributions which Jews made to science, *because* they were Jews. It merely lists the names of Jews in science, and tells very briefly under what adverse circumstances they pursued their scientific work. It is too condensed to serve as a history. It may perhaps convince some of its readers, who need that conviction, that the Jew does share in, and does well in the sciences. IAGO GALDSTON

Plague. A Manual for Medical and Public Health Workers—*By Wu Lien-Teh, M.D., J. W. H. Chun, M.D., R. Pollitzer, M.D., and C. Y. Wu, M.B. Shanghai, China: National Quarantine Service,* 1936. 547 pp. Price, $4.00.

There has come to us from China a book on plague which is quite unusual. The senior author was formerly Director of the Manchurian Plague Prevention Service, and is well known for his writings, especially those on the various aspects of plague, including its prevention. Drs. Chun and Pollitzer were formerly associated with the senior author in the Manchurian Plague Prevention Service, and are now in the Quarantine Service at Shanghai. Dr. Wu is connected with the National Quarantine Service and is Senior Quarantine Officer at Shanghai. All four authors have had extensive experience with plague from every standpoint, and the book they have produced is authoritative.

The history of the disease, hosts and carriers, and epidemiological factors are from the pen of the senior author; bacteriology, immunology, pathology, and laboratory diagnosis are by Dr. Pollitzer; insect vectors, prophylaxis and management of epidemics, and ship-borne plague are by Dr. Wu; while Dr. Chun has been responsible for the clinical features, therapy, and personal prophylaxis. They have evidently worked in close association and there is an evenness of treatment sometimes missing from a book produced by several authors.

The authors state that they have kept constantly in mind the needs of medical and public health workers, and while some material of highly technical nature has been included on account of its value to advanced students, their chief object has been to provide a practical guide for the prevention and treatment of plague. The many people all over the world who are familiar with the writings of the authors need not be told that a thorough canvass has been made of every source of information.

It is held that the oldest and most active of the endemic areas of the world are within or adjacent to the Central Asiatic plateau, which constitutes the ancestral home of plague. The idea that North Africa and areas in Eastern Central Africa were the early foci is held to be without sound foundation.*

The authors believe that, taken as a whole, the changes are favorable for a continued survival of the plague virus. Under favorable conditions, infection may persist for long periods in one place. Rats are not given to extensive active migration, but are passively carried by ships and other means of communication to very distant points. Infected fleas may also play a significant part, being carried by man and certain

* This is discussed at length and in detail in *Manchurian Plague Prevention Service Memorial Volume,* 1934.

types of merchandise to widely scattered regions. In areas in India which experience regular outbreaks during the plague season, the disease persists in rats during the off-season in limited localities. At present there are 27 principal foci, most of which are in the East, although the Hawaiian Islands and the United States contain foci of infection. In the Rocky Mountain region of the United States a wild rodent plague, to which the name "selvatic" plague has been given by Jorge, shows a disquieting tendency to spread and new foci have been found in this district very recently.

There is a general retrogression of the present pandemic. Curiously enough, Europe, which in the past has been a favored home of pandemics, has become almost impregnable to the current wave of infection. The authors hope that improved standards of living and housing, together with the laws of nature, will render other regions unfavorable to major inroads of plague.

From our standpoint, the epidemiology of the disease is the most important feature, since upon this depend prevention and the management of epidemics. General prevention of the bubonic type of the disease is based upon its relation to rodents and their ectoparasites. Man's contact with the infection depends chiefly on contact with the rat and its fleas, and his chance of escape from the scourge is conditioned upon the effectiveness of the campaign against these vermin. While the authors make this broad statement, they recognize fully the rôle of the ground squirrel in California and other rodents in some parts of the world, especially, for example, the tarabagan of Mongolia and Transbaikalia, and the susliks of South-Eastern Russia. The authors agree with Deprat that "the doctrine of rat and flea guilt forms the keystone of the arch of international sanitary defense against plague," but also with Heiser, who holds that the "control of the disease depends upon preventing rat-fleas that have bitten plague-infected rats or human beings from biting man." They point out that the natural spread of the disease is greatly retarded because rat-fleas do not bite man by choice, but only after failure to find their proper host.

The book is profusely illustrated with half-tone plates, maps, charts, figures, and some color plates. All names of persons, diseases, parasites, and many illustrations are given in the Chinese characters as well as in English. The scientific names of insects and rodents are also given in italics. There are interesting tables, one giving a list of the pestilences in China from 224 B.C. down to the present time. Each chapter is followed by a well selected bibliography. Altogether, it is hard to speak too highly of this book. All of the authors write exceptionally good English. The book is up to date, even including some references in 1936. The printing and binding are excellent.

MAZÝCK P. RAVENEL

Hospital Organization and Management—*By Malcolm T. MacEachern, M.D. Chicago: Physicians Record Company,* 1936. 944 pp. Price, $7.50.

The increasing relationships of hospitals with public health work render this book of considerable interest to health administrators. Dr. MacEachern, as director of hospital activities of the American College of Surgeons, has had unique opportunities to become familiar with hospitals throughout the United States and Canada, and he has drawn upon his wealth of experience in compiling this substantial handbook for executive officers of medical institutions.

After a brief review of the history of hospitals and of the problems of planning and building new ones, the general

organization of a hospital is described. A series of chapters is then devoted to the professional and administrative departments. The book enters into technical detail of practical value in the day's work of the administrator, but does not fail to enunciate general principles also. Considerable attention is given to the community relations of the hospital, and to methods of public education. Relationships with public health departments fill only a few pages. Much more might have been said on this subject in connection with the laboratory and out-patient services. Care of communicable diseases is dealt with and the development of satisfactory facilities for them in general hospitals. The numerous copies of forms, "standards," and standing orders are a useful feature of the book.

Little attention is given to the special problems of the small hospital in the town or rural community, a matter to which many health officers are now giving considerable thought; but it must be borne in mind that this is a handbook of institutional management rather than a guide to public policy.

MICHAEL M. DAVIS

Outline of Town and City Planning—*By Thomas Adams. New York: Russell Sage Foundation,* 1935. 368 pp. Price, $3.00.

This volume is largely based on a course of lectures delivered to students of the Department of Architecture of the Massachusetts Institute of Technology over a period of 11 years. A brief description is given in the introduction of the meaning and scope of city planning in relation to modern practice. Part I reviews the character of early efforts in the planning of cities down to the middle of the 19th century; Part II describes developments in the United States and other countries since about 1830, concluding with a discussion of modern methods and aims, and of some considerations relating to the future; while the Appendix summarizes many aspects of the subject which the city planner may have to consider. Logical arrangement of subject matter and enlightening information regarding community planning procedures, characterize this volume which should be a useful source book for city officials, including health administrators, as well as those specifically engaged in planning and zoning departments.

City and town planning is defined as a science, an art, and a movement of policy concerned with the shaping and guiding of the physical growth and arrangement of towns in harmony with their social and economic needs.

> We pursue it as a science to obtain knowledge of urban structure and services and the relation of its constituent parts and processes of circulation; as an art to determine the layout of the ground, the arrangement of land uses and ways of communication and the design of the buildings on principles that will secure order, health, and efficiency in development; and as a movement of policy to give effect to our principles.

The suggestion is made that the tempo of traffic that has arisen in the cities of all countries has caused traffic problems to be overemphasized in town plans; but it is being more and more realized that solution of the evils of congestion by means of communication cannot be achieved without orderly control of building designs, uses and densities, and the provision of ample spaciousness for health and recreation in the surroundings of homes and places of work. Furthermore, the plan of a new town may, on the whole, be approached without the limitations which affect replanning. "Much that can merely be mended in the existing community can be prevented by foresight in the new community." The author suggests the term "civic design" to distinguish the art of city planning from the act or machinery of making plans, and emphasizes that a plan is only a

means to an end, and that end is a stable and well balanced physical structure so designed as to secure health, safety, amenity, order, and convenience, and, generally, to promote human welfare. IRA V. HISCOCK

Your Germs and Mine: The Story of Good and Bad Microbes—*By Berl ben Meyr. Garden City: Doubleday, Doran,* 1934. 389 pp., 34 ill. Price, $2.75.

The title page contains a quotation from Dr. Logan Clendening; the book is dedicated "To Koch's Bacillus)"; acknowledgments are made to 65 persons, including novelists, columnists, and an authority on the psychology of sex; and there is a foreword by Dr. Albert Einstein. In a foreword of his own, the author explains that while "the human drama lurking within bacteriological research already has established itself as a theme in modern literature," he proposes to portray "the critical part played in human affairs by the bacteria themselves."

With so much said by way of introductory explanation, one would expect to find some assurance that the information is authentic, but none is given. Nor are there references in the text by which the lay reader can confirm or follow further the information set forth. Inasmuch as the author does not attempt to promote any new theory or upset any established fact, but merely to interpret what may be regarded as orthodox doctrine, perhaps this does not greatly matter.

Among the 13 chapters are the following: The Nature of Microbes; The Microbes in Dust, Air, Sewage, and Water; Milk and Its Microbes; Microbes in the Home; and Microbes in the Prohibition, War and Other Industries.

About a dozen diseases are taken up and dealt with specifically. Here there are a few minor slips. Turning to Chapter VIII, the reader finds the statement that "practically every urban center in the United States has a crop of typhoid fevers in the late summer and autumn," due to infection contracted while on vacation, but on the next page a statement appears to the effect that among 81 of the larger cities there were 9 without a single typhoid death for 1 year, and 6 with a population of one million or more with less than 2 per 100,000.

The author declares that typhoid carriers "probably have a chronic infection in the intestinal or genitourinary tract, which continues to discharge virulent microbes," but says nothing about infections of the gall bladder.

In the section on water supplies there are also several slips, as where inspection of the sources is omitted from an account of the ways in which the question of the purity of a water supply can be estimated. And in the matter of water analysis, the great significance which may attach to the quantitative determination of chlorine seems to be misunderstood by the author.

Intended for the popular mind, there is little in this book that the health officer of today has not learned in his days of training or cannot readily get from authoritative sources in his library.

GEORGE A. SOPER

Bibliography in Health Education for Schools and Colleges—*By Mary Ella Chayer, R.N., A.M. New York: Putnam's,* 1936. 100 pp. Price, $1.50.

"The purpose of this bibliography is to offer to the classroom teacher and to the special teacher or health education supervisor a wide variety of source materials from which to select library materials."

Though this is a fair bibliography of the field of health education, there seem to be certain serious deficiencies. In

the field of play, it would be interesting to know why Joseph Lee's *Play in Education,* a text 13 years old, was chosen in preference to Mitchell and Mason *The Theory of Play,* modernized and published in 1934.

The necessarily brief descriptions of content are in some cases seriously misleading.

Why was the outstanding periodical in this field, *The Journal of Health and Physical Education,* omitted from the list?

The classification of texts has been carelessly done. One that has received several state and numerous city adoptions as a high school text is listed as a college text—advanced—and the name of one of the authors is omitted.

There is probably no other field of publication in which the work is so poorly done as in that of bibliography.

CHARLES H. KEENE

How Life Begins—*By George L. Bird. Chicago, Ill.: The Book House for Children,* 1935. 117 pp. Price, $1.00.

Explaining the beginning of life to children is still one of the most difficult tasks the parent faces. Nor do books written to aid the parent in this duty always prove of much assistance. It would seem, however, that the one under review might furnish the needed aid, especially if the children to be instructed have some acquaintance with country life.

The plan of the book is a simple one. Starting with the beginning of plant life as represented by the yucca, it progresses in eight chapters through bird and lower animal life to the story of reproduction in man. The subject is handled simply, the stories which carry the information are interesting, natural and appealing. Parents and children both will appreciate this book intended for children from 6 to 10 years of age. M. E. CHAMPION

Tuberculosis—*By Gerald B. Webb, M.D. XVI of the Clio Medica Series, edited by E. B. Krumbhaar. New York: Hoeber (Medical Book Department of Harper),* 1936. 205 pp. Price, $2.00.

This little volume is a valuable addition to the library of tuberculosis in that the author presents in terse readable form a compact historical survey of his subject that makes the facts readily and entertainingly available to the general practitioner, the medical undergraduate, and the interested layman. A monotonous chronological presentation is avoided by division of the history into epidemiology, the knowledge of the ancients, the middle ages, contagion, pathology, the tubercle, the tubercle bacillus, immunity, diagnosis, treatment, rest treatment of tuberculosis, climate, sanatoria, and legislative prophylaxis. Apt quotations preface and conclude the separate chapters. Certainly the wise and busy physicians cognizant of the value of a historical background in treatment and diagnosis must spare a short hour or two for this little handbook and possibly a second period for a profitable re-reading.

LAWRASON BROWN

Stamp Out Syphilis!—*By Thomas Parran, M.D. Survey Graphic, July, 1936. Reprints are available at 10 cents per copy. Also enlarged facsimiles of pictographs. Quantity rates from Survey Associates, 112 East 19 St., New York, N. Y.*

Following closely on the list of "Musts" in public health work attributed to Surgeon General Thomas Parran of the Public Health Service, comes a striking article by him featured in the *Survey Graphic* which is being widely distributed throughout the country.

The writer says that syphilis bids fair to become the great American disease, though the figures given indicate that

it may have already taken this position. He scores our apathy and the "hush-hush" policy which we have followed, to which he attributes a large part of the spread of the disease. He tells of "Damaged Lives," an excellent moving picture adapted from the German by the American Social Hygiene Association for educational purposes, yet its public exhibition was forbidden in New York State, and only in New England and a few states could it be shown freely.

After a description of existing conditions, he states positively that our ability to control syphilis is greater than that for tuberculosis or typhoid fever, both of which diseases we have controlled to an extent hardly believed possible a few years ago. He backs this statement by the experience of Sweden, Norway, and Denmark, with a combined population nearly equal to that of New York State, yet all told they have about 1,600 cases of syphilis a year, while in New York State, exclusive of the City, last year there were 21,984 cases under treatment. In New York City, there were 1,836 new cases in one month. In the whole of Sweden, with practically the same population, only 431 occurred the entire year. While the Scandinavian countries are outstanding in their control of this scourge, America seems to be behind a number of other countries in many administrative features. Various methods of case finding and early control are discussed, as are legislation and education. Dr. Parran holds that the control of syphilis is not the business of the public health officer, the physician, and social worker only, but the whole people must be interested and take an active part. He lays down 5 things which obviously should be done, and ends by saying: "Syphilis must be the next great plague to go. We must attack it now."

MAZŸCK P. RAVENEL

BOOKS RECEIVED

FACTS AND FRAUDS IN WOMAN'S HYGIENE: A Medical Guide Against Misleading Claims and Dangerous Products. By Rachel Lynn Palmer and Sarah K. Greenberg, M.D. New York: Vanguard, 1936. 311 pp. Price, $2.00.

GROUP DISCUSSION MATERIAL ON ACCIDENT PREVENTION—ON THE FARM, IN THE HOME. Washington: The American National Red Cross, 1936. 79 pp.

HANDBÜCHEREI FÜR DEN ÖFFENTLICHEN GESUNDHEITSDIENST. Vol. 6, ORTSHYGIENE BÄDER UND KURORTE. By H. Lehmann and H. Vogt. Berlin: Carl Heymanns Verlag, 1936. 247 pp. Price, RM. 13.

LABORATORIO DE ANÁLISIS DE AGUAS Y DE INVESTIGACIONES SANITARIAS. Informe Anual de 1935. Caracas: 1936. 117 pp.

MATERIA MEDICA AND THERAPEUTICS: A Text Book for Nurses. (6th ed., rev.) By Linette A. Parker. Philadelphia: Lea & Febiger, 1936. 377 pp., ill. Price, $2.50.

WHY QUIT OUR OWN? Offering an American Program for Farm and Factory. By George N. Peek with Samuel Crowther. New York: Van Nostrand, 1936. 353 pp. Price, $.50.

HISTORY OF COUNTY HEALTH ORGANIZATIONS IN THE UNITED STATES, 1908–1933. Compilation by John A. Ferrell, M.D., Dr.P.H., and Pauline A. Mead. Public Health Bulletin No. 222. Washington: U. S. Public Health Service, 1936.

INTERNATIONAL LABOUR ORGANISATION AND SOCIAL INSURANCE. By the International Labour Office. London: P. S. King & Son, Ltd., 1936. 219 pp. Price, $2.50, cloth, $1.50, paper.

THE RISE OF MAN THROUGH HIS HANDIWORK: Why Are We Right-Handed? By David Reisz. Cleveland, Ohio: Better Education Association, 1936.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Rural Health Units Increase—Recounting the modest gain in rural full-time health units: 71 net for 1935, making 612 in all.

ANON. Extent of Rural Health Service in the United States, December 31, 1931, to December 31, 1935. Pub. Health Rep. 51, 33:1117 (Aug. 14), 1936.

Nasal Instillations and Poliomyelitis—Further experimental evidence is presented to indicate the prophylactic value of picric acid-sodium aluminum sulphate mixture against poliomyelitis and encephalitis.

ARMSTRONG, C., and HARRISON, W. T. Prevention of Intranasally Inoculated Encephalitis (St. Louis Type) in Mice, and of Poliomyelitis in Monkeys by Means of Chemicals Instilled into the Nostrils. Pub. Health Rep. 51, 33:1105 (Aug. 14), 1936.

Medicine and Hygiene—Nine good reasons and true why the physician should be the central figure in the public health program.

BAUER, W. W. The Physician's Place in the Health Program. J.A.M.A. 107, 7:485 (Aug. 15), 1936.

Health Work that Pays Cash Dividends—Arriving at the conclusion that efficient industrial health and safety services will save the employer $12,000 per 1,000 employees per annum, and will save the employees half as much again, the obvious social advantages of adequate industrial welfare work are emphasized.

BRUNDAGE, D. K. An Estimate of the Monetary Value to Industry of Plant Medical and Safety Services. Pub. Health Rep. 51, 34:1145 (Aug. 21), 1936.

Primary Pneumonias in Children—Among 1,000 children with pneumonia in a general hospital, bronchopneumonia occurred most frequently in infants and was more fatal than lobar pneumonia. Non-pneumococcus pneumonias were more frequent and fatal in infants than in older children.

BULLOWA, J. G. M., and GREENBAUM, E. The Primary Pneumonias of Infants and Children. Pub. Health Rep. 51, 32:1076 (Aug. 7), 1936.

Comforting Cancer Statistics—In Massachusetts, 1935 was the first year showing a decrease in cancer in both sexes. In some previous years one sex or the other had shown declines, but not both.

CHADWICK, H. D., and LOMBARD, H. L. The Massachusetts Cancer Program. New Eng. J. Med. 215, 7:265 (Aug. 13), 1936.

Laboratory Aids to Smallpox Diagnosis—Complement-fixation tests for suspected smallpox were made successfully upon cases in a recent Canadian outbreak. Details of the test are given.

CRAIGIE, J., and WISHART, F. O. The Complement-Fixation Reaction in Variola. Canad. Pub. Health J. 27, 8:371 (Aug.), 1936.

Rural Communicable Disease Control—Though only a fraction of the communicable disease cases in the area surveyed were reported, most of those that had been were visited. The major effort in control was immunization against smallpox, diphtheria, and typhoid fever.

DEAN, J. O., and PENNELL, E. H. Communicable Diseases and Activities for Their Control in the Brunswick-Greensville Area. Pub. Health Rep. 51, 30:991 (July 24), 1936.

Automobiles vs. Children—Most dangerous to children are the automobiles of the north-eastern part of the

country. The western part is the safest.

GAFAFER, W. M. Mortality from Automobile Accidents among Children in Different Geographic Regions of the United States in 1930. Pub. Health Rep. 51, 32:1076 (Aug. 7), 1936.

Undulant Fever in the Middle West—Iowa and surrounding states have more Brucella infection than other parts of the country, especially of the porcine variety.

HARDY, A. V., *et al.* Undulant Fever. J.A.M.A. 107, 8:559 (Aug. 22), 1936.

Warthin's Cancer Family—Reported here are continued studies of a family which provides strong presumptive evidence for an inheritable organ-specific predisposition to carcinoma.

HAUSER, I. J., and WELLER, C. V. A Further Report on the Cancer Family of Warthin. Am. J. Cancer 27, 3:434 (July), 1936.

Deafened Children's Education—Most hard of hearing children have a low intelligence quotient because of lack of educational experience, not brains. Training in lip reading makes it possible for them to keep up with classmates.

HOFSOMMER, A. J. Lip Reading and the Intelligence Quotient of the Hard of Hearing Child. J.A.M.A. 107, 9:648 (Aug. 29), 1936.

Acquired and Inherited Resistance—One reason why experimental work in animals has not led to more definite results in immunizing man against tuberculosis is that the inheritance of resistance, which the authors believe to be predominantly operative in man, is absent in animals.

MILLER, J. A., and RAPPAPORT, I. Resistance to Tuberculosis. J.A.M.A. 107, 7:472 (Aug. 15), 1936.

When Canada Was Young—This account of the plagues and other hygienic catastrophes that beset Canada in the early days may furnish some future sanitary historian with valuable reference material.

POWER, C. G. Progress of Public Health in Canada. Canad. Pub. Health J. 27, 8:380 (Aug.), 1936.

Thoughts about Eating—Some absorbing speculations on the origin of dietary habits and the influences which affect present-day choice of food. Those who lecture on nutrition might well take a page or two from this stimulating article.

REMINGTON, R. E. The Social Origins of Dietary Habits. Sci. Month. Sept., 1936, p. 193.

Publicity for Nursing — These articles, while devoted to nursing service publicity, have much of value for persons concerned with other branches of public health administration.

RESNICK, D. Publicity for Your Nursing Service.

REDMOND, M. Paper, Pencil, and Publicity.

CORNELL, E. S. The Movie Problem.

GOODRICH, A. M. Making a Movie for a Visiting Nurse Service. Pub. Health Nurs. 28, 8:501 (Aug.), 1936.

ASSOCIATION NEWS

SIXTY-FIFTH ANNUAL MEETING

NEW ORLEANS, LA., OCTOBER 20–23, 1936.

Meeting Headquarters, Municipal Auditorium
Residence Headquarters, Hotel Roosevelt

For the Preliminary Program, Railroad Fares, Hotel Rates, and Post-Convention Tour, see Supplement to the September *Journal*

ALL is in order for the 65th Annual Meeting, New Orleans, La., October 20–23.

The scientific program is complete. The Local Committee has arranged for entertainment and inspection trips. More than forty applications for scientific exhibit space have been accepted. Special trains have been set up from principal cities for travel with pleasant companions. The post-convention tour to Florida and Havana is rapidly organizing. In brief, the various Annual Meeting committees, the City of New Orleans, and the convention management await the large audience which the 65th Annual Meeting will attract.

A 24 page supplement conveying full Annual Meeting information, including program, hotel and railroad rates, train schedules, and a summary of the Florida and Havana tour was bound in the September *Journal*.

NO RAILROAD IDENTIFICATION CERTIFICATES THIS YEAR

It is expected that winter rates to New Orleans will be in effect as usual October 1. Since these are lower than convention fares and are public tariffs, no identification certificates are needed for travel to New Orleans. **Consult your local ticket agent for the best rates prevailing in your territory.**

INSPECTION TRIPS AT NEW ORLEANS

Tuesday, October 20, 2:00 P.M.

Trip to Huey P. Long Bridge, New Orleans Water Purification Plant and New Orleans Sewerage and Drainage System.

Wednesday, October 21, 8:00 A.M.

Trip to U. S. Public Health Service Leprosarium at Carville, La. Two hours of inspection there. Continue to Baton Rouge, luncheon at Louisiana State University Cafeteria, visit to Louisiana State University Campus and State Capitol Building. This trip covers 180 miles and occupies a full day.

Wednesday, October 21, 1:00 P.M.

Visit to Louisiana State University Medical Center, Tulane University Medical School and Charity Hospital, New Orleans, La.

Friday, October 23, 2:00 P.M.

Visit to City and State Health Departments, including Laboratories, Bureaus of Vital Statistics, Sanitary

Engineering, Epidemiology, and Parish Health Administration.

Friday, October 23, 1:00 P.M.

Visit to U. S. Marine Hospital and Quarantine Station.

The Inspection Trips Committee is prepared to arrange special trips for limited numbers to local points of interest upon request.

ENTERTAINMENT AT NEW ORLEANS

The Entertainment Committee, under the chairmanship of Dr. A. L. Fossier, announces that a ball " A Night in Old New Orleans " is planned to follow the opening General Session on Tuesday, October 20. There will be costumes appropriate to the times, Negro mammies to serve the guests, and all the arrangements in traditional New Orleans style. Refreshments will be served.

On Wednesday, October 21, at 3:00 P.M., a trip through the French Quarter with guides is scheduled. This will be followed by tea at the " Court of Two Sisters."

An automobile sight-seeing trip throughout the city takes place on Thursday, October 22, starting at 3:30 P.M.

Dancing will follow the banquet on Thursday evening.

Golf privileges have been secured from various golf clubs.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Ralph H. Allen, M.D., Ruston, La., Director, Lincoln Parish Health Unit

Joseph E. Brodie, M.D., 5 Oakhaven Court, Greenwood, S. C., Greenwood County Health Officer

C. S. Cotlin, Jr., M.D., C.P.H., Box 208, Wetumpka, Ala., Elmore County Health Officer

James T. Duncan, M.D., 351 Beale Ave., Wooster, Ohio, Acting Health Commissioner, Wayne County

Thomas G. Faison, M.D., Winton, N. C., Hertford County Health Officer

Henry C. Gahagan, M.D., Coushatta, La., Director, Red River Parish Health Unit

Marshall E. Groover, Jr., M.D., Box 447, Quitman, Ga., Brooks County Health Officer

Lucius W. Holloman, M.D., Marksville, La., Director, Avoyelles Parish Health Unit

Matt F. Houston, M.D., Houma, La., Director, Terrebonne Parish Health Unit

Fritz A. LaCour, M.D., Crowley, La., Assistant Director, Acadia Parish Health Unit

Raymond F. McAteer, M.D., 4 Narragansett Court, Narragansett, R. I., Director, So. District Health Unit

Bernard T. McGhie, M.D., Toronto, Ont., Canada, Deputy Minister of Health

Peter F. Murphy, M.D., Alexandria, La., Acting Director, Rapides Parish Health Unit

Leland E. Powers, M.D., Port Angeles, Wash., Clallam County Health Officer

A. Einar Rietz, M.D., Vasagatan 6, Stockholm, Sweden, Medical Officer of Health

John Schreiber, M.D., Vidalia, La., Director, Concordia Parish Health Unit

W. K. Sharp, Jr., M.D., U. S. Marine Hospital, New Orleans, La., Regional Consultant, U. S. Public Health Service

Arthur M. Shelamer, M.D., C.P.H., State Dept. of Health, Montgomery, Ala., Field Adviser in County Organization

Hubert S. Smith, M.D., P. O. Box 245, Thibodaux, La., Director, Lafourche Parish Health Unit

Lewis C. Spencer, M.D., Harrisonburg, La., Director, Catahoula Parish Health Unit

Waldo L. Treuting, M.D., Box 311, New Roads, La., Director, Pointe Coupee Parish Health Unit

William E. Van Landingham, M.D., P. O. Box 758, West Palm Beach, Fla., City Health Officer

John M. Whitney, M.D., Jennings, La., Director, Jeff Davis Parish Health Unit

Frank A. Williams, M.D., Franklinton, La., Director, Washington Parish Health Unit

John E. Worden, M.D., 215 N. Carson St., Carson City, Nev., State Health Officer

Laboratory Section

Milward Bayliss, Ph.D. University of Nebraska Medical College, Omaha, Nebr., Instructor, Bacteriology and Public Health

Ruth Castles, State Dept. of Public Health, Nashville, Tenn., Laboratory worker

Herbert W. Emerson, Pasteur Institute, University of Michigan, Ann Arbor Mich., Director

William A. Feirer, M.D., D.Sc., Glenolden, Pa., Director, Mulford Biological Laboratories, Sharp & Dohme

Harley J. Morris, P. O. Box 265, Meadville, Pa., City Bacteriologist

Arthur W. Tallman, P. O. Box 376, Johnstown, O., Director, Hixson Laboratories, Inc.

Vital Statistics Section

Willis C. Beasley, Ph.D., U. S. Public Health Service, Washington, D. C., Assistant Chairman, Health Inventory Operating Council

Margaret Chisholm, 532 Third Ave., Lewiston, Ida., Department Clerk, Nez Perce County Health Dept.

Douglas N. West, 408 Medical Arts Bldg., Atlanta, Ga., Supervisor, Georgia Rural Health Survey Analysis, U. S. Public Health Service

Public Health Engineering Section

Tilden D. Adkins, 605 N. Patterson, Valdosta, Ga., District Engineer, State Dept. of Public Health

Earl B. Barnawell, Box 186, Thomaston, Ga., District Supervisor, Malaria Control and Community Sanitation, U. S. Public Health Service and State Dept. of Public Health

William W. Brush, 24 W. 40 St., New York, N. Y., Editor, *Water Works Engineering*

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Juan A. Hernandez, C.E., Instituto Finlay, Havana, Cuba, Civil Engineer, National Sanitary Engineering Dept.

Fred R. Ingram, 216 Lyon Bldg., Reno, Nev., Sanitary Engineer, State Board of Health

Walter J. Shea, 327 State Office Bldg., Providence, R. I., Chief, Division of Purification of Waters, State Dept. of Public Health

Food and Nutrition Section

Edmund St. J. Baldwin, 110 Hudson St., New York, N. Y., Supervisor, Bureau of Sanitary Control, Borden's Farm Products

Cassius L. Clay, 422 Chartres, New Orleans, La., State Analyst, Bureau of Food and Drugs

Margaret C. Moore, 4833 St. Charles Ave., New Orleans, La., Assistant State Chemist, State Board of Health

James E. Thomson, 110 Hudson St., New York, N. Y., Manager, Production and Quality Control, Borden's Farm Products

Industrial Hygiene Section

James P. Deery, M.D., 58 Bainbridge Ave., Providence, R. I., Chief, Division of Industrial Hygiene, State Dept. of Public Health

W. Eugene Masters, M.D., 750 N. High St., Columbus, O., Medical Supervisor, Bureau of Occupational Diseases, State Dept. of Health

Herbert I. Miller, Jr., 2609 Charlock, Overland, Mo., Industrial Hygiene Engineer, State Board of Health

Carl A. Nau, M.D., State Dept. of Health, Austin, Tex., Director, Division of Industrial Hygiene

Frank A. Patty, 80 Maiden Lane, New York, N. Y., Industrial Hygiene Research Worker, Fidelity and Casualty Company of New York

Beverly L. Vosburgh, M.D., General Electric Co., Schenectady, N. Y.

Child Hygiene Section

Orville Barbour, M.D., 528 Jefferson Bldg., Peoria, Ill., formerly Pediatrician, Peoria Public Health Nursing Assn. Clinic

Lloyd A. Masterson, M.D., 313 New Courts Bldg., New Orleans, La., Director, Division of Maternal and Child Health, State Board of Health

M. Alexander Novey, M.D., 2424 Eutaw Place, Baltimore, Md., Chief, Division of Maternity Hygiene, City Health Dept.

Public Health Nursing Section

Alice A. Campbell, R.N., Court House, Lewiston, Ida., Supervising Nurse, Nez Perce County Health Dept.

Mary M. Cosgrove, R.N., 517 S. 4th Ave., Pocatello, Idaho, Staff Nurse, Bannock County Health Unit

Hazel M. Dobson, Box 502, Pocatello, Idaho, Staff Nurse, Bannock County Health Unit

Margaret E. Fuchs, 912X–9th St., Lewiston, Idaho, Hourly Nursing Service, Nez Perce County Health Dept.

Ruth C. Havenor, c/o County Surveyor, Pocatello, Idaho, Nurse, Bannock County Health Unit

Carolyn M. Hidden, 1 Madison Ave., New York, N. Y., Territorial Supervisor, Metropolitan Life Ins. Co.

Nell K. Hulett, R.N., Grace, Idaho, District Nurse, Dept. of Public Welfare

Audrey E. Jones, R.N., 412 Fourth Ave., Lewiston, Ida., Nurse, Nez Perce County Health Unit

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Margaret Millay, R-2, Box 374A, Lewiston, Idaho, Staff Nurse, Nez Perce County Health Unit

Helen M. Noble, R.N., Rawls Hotel, Enterprise, Ala., Public Health Nurse, Tuberculosis Survey, Alabama and Tennessee

Lillian O'Callaghan, R.N., Court House, Lewiston, Ida., Staff Nurse, Nez Perce County Health Unit

Laura E. Peck, 900 Blaine, Detroit, Mich., Supervisor, Communicable Disease Nursing Division, Dept. of Health

Phyllis Pehrson, 495 E. 1st N., Logan, Utah, Visiting Nurse, Metropolitan Life Ins. Co.

Elva M. Pugmire, R.N., 1029 N. Hayes, Pocatello, Ida., Staff Nurse, Bannock County Health Unit

Marie C. Quigley, R.N., Hardin County Health Dept., Savannah, Tenn., Public Health Nurse

Marie D. Richardson, R.N., 101 S. Johnson, Pocatello, Idaho, Supervisor of Nurses, Bannock County Health Unit

Marjory Stimson, Simmons College, Boston, Mass., Assistant Professor, Public Health Nursing

Ruth G. Taylor, R.N., 1206 Market St., San Francisco, Calif., Public Health Nursing Consultant, U. S. Children's Bureau

Lucy G. White, R.N., School of Nursing, Vanderbilt University, Nashville, Tenn., Professor of Public Health Nursing

Mary Williams, R.N., Board of Health, Honolulu, T. H., Director, Bureau of Public Health Nursing

Public Health Education Section

Ross L. Allen, Dr.P.H., 133 Fairview Ave., Ann Arbor, Mich., Assistant Editor, *Journal of Health and Physical Education* and *The Research Quarterly*, American Phys. Ed. Assn.

John J. Angel, M.D., M.S.P.H., 2646 Merriman Rd., Wayne, Mich., on staff, St. Mary's Hospital

Margaret A. Conquest, R.N., Lock Box 18, Fenton, Mich., Rural Public Health Worker

Edwin C. Ganzhorn, M.D., 309 S. Main, Ann Arbor, Mich., Washtenaw County Physician

Elma C. Graham, Court House, Beaver, Pa., Executive Secretary, Beaver County Tuberculosis Assn.

Edith L. Grant, R.N., 313 Eagle St., Medina, N. Y., Nurse Teacher, Board of Education

Mary S. Gray, R.N., 521 Roycroft Ave., Iron Mountain, Mich., Trainee for Public Health Nursing

Marcia S. Hays, M.D., Stanford School of Medicine, San Francisco, Calif., Instructor, Dept. of Public Health and Preventive Medicine

George W. Watson, Gratiot, O., Hygiene Teacher, Hopewell High School

Epidemiology Section

William A. Brumfield, Jr., M.D., C.P.H., State Dept. of Health, Albany, N. Y., Medical Consultant, Division of Social Hygiene

Carl N. Neupert, M. D., 516 E. Gorham St., Madison, Wis., Supervisor of Public Health Service, State Board of Health

Jose Rodriguez Pastor, Health Dept., San Juan, P. R., Tuberculosis Specialist

William M. Rush, 404 U. S. Courthouse, Portland, Ore., Regional Director, U. S. Biological Survey

Unaffiliated

Mary C. Baldwin, M.D., 3616 Main St., Riverside, Calif., School Physician

Charles H. Kinsley, P. O. Box 423, Merced, Calif., Merced County Inspector

Maurice Lenarsky, M.D., 380 Riverside Drive, New York, N. Y., Assistant Clinic Physician, Bellevue-Yorkville Health Centre

H. M. C. Luykx, 1007 Seyburn, Detroit, Mich., Chief, Tabulating Dept., U. S. Public Health Service Health Inventory

Harold Rosenblum, M.D., 2200 Post St., San Francisco, Calif., Medical Director, Mt. Zion Hospital

Edward T. Ross, 307 State Bldg., San Francisco, Calif., Chief, Bureau of Sanitary Inspections, State Dept. of Public Health

DECEASED MEMBERS

Edwin W. Bullock, M.D., Somerville, Mass., Elected Member 1921

Marion H. Ewalt, Pittsburgh, Pa., Elected Member 1935

Alfred B. Lippert, M.D., Sidney, O., Elected Member 1927

Baylis F. Sloan, M.D., Walhalla, S. C., Elected Member 1934

John C. Chase, Derry, N. H., Elected Member 1890, Fellow 1922.

George T. Hammond, Brooklyn, N. Y., Elected Member 1920, Fellow 1922

Wade Wright, M.D., Roxbury, Conn., Elected Member 1921

APPLICANTS FOR FELLOWSHIP

(Additions to lists published in July and August Journals)

HEALTH OFFICERS SECTION

Judson D. Dowling, M.D., Birmingham, Ala.
Jesse C. Ellington, M.D.. C.P.H., Ancon, C.Z.
Lee A. Stone, M.D., Madera, Calif.
Albert W. Sweet, Ph.D., Freehold, N. J.

INDUSTRIAL HYGIENE SECTION

Zolton T. Wirtschafter, M.D., Cleveland, Ohio

PUBLIC HEALTH EDUCATION SECTION

Lawrence G. Sykes, M.D., New York, N. Y.

EPIDEMIOLOGY SECTION

Carleton Dean, M.D., C.P.H., Charlevoix, Mich.

Morris L. Grover, M.D., M.P.H., Providence, R. I.
George C. Payne, M.D., Dr.P.H., San Juan, P. R.

UNAFFILIATED

Francis E. Colien, Ph.D., Omaha, Nebr.

CORRECTION

In the August *Journal*, on page 812, appeared a filler on "Causes of Insanity," taken from a magazine which comes to the A.P.H.A., and which was thought to be reliable. However, we find now it was not so, and we can get no definite information on such a study having been made by the American Medical Association.

NEWS FROM THE FIELD

ASSOCIATION OF WOMEN IN PUBLIC HEALTH

THE Association of Women in Public Health will hold its customary dinner meeting on Monday evening, October 20, just before the first session of the American Public Health Association. This is an open meeting which all members of the A.P.H.A. and their friends are invited to attend. The A.W.P.H. meeting is always an informal friendly gathering, one of the prime objects of the Association being the strengthening of old acquaintanceship and the forming of new ties of fellowship. The program, necessarily brief, will consist of several 10 minute discussions of the changes which have come about in various fields of public health during the past year, a sort of parade of New Styles in Public Health.

Dinner will be served promptly at 6:30 at $1.50 per plate. Tickets may be obtained at the main Registration Desk.

WILLIAM HALLOCK PARK LABORATORY

ON Tuesday, October 6, the New York City Department of Health will dedicate a new laboratory building for the laboratory unit at the foot of East Sixteenth Street so long directed by Dr. William H. Park. The dedication will be utilized to pay a tribute to the distinguished services rendered by Dr. Park in the promotion of public health. Hereafter the laboratory will be known as the William Hallock Park Laboratory.

With the dedication of the new laboratory Dr. Park will relinquish active direction, this work being intrusted to Dr. Ralph Muckenfuss. Dr. Park entered the service of the Department of Health in April, 1893, and has thus been in continuous service for over 43 years. Speakers at the dedication exercises will include Surgeon-General Parran, Professor C.-E. A. Winslow, Mayor LaGuardia, Commissioner John L. Rice, and others.

ROAD NAMED FOR HENRY ROSE CARTER

CARTER Place, Balboa Heights, C. Z. South of Gorgas Road, and extending from the Cathedral of St. Luke to Frangipani Street, a palm-lined roadway passes in front of the official quarters of the Superintendent of Gorgas Hospital. On this site

formerly stood the quarters occupied by the late Henry Rose Carter, U. S. Public Health Service, Chief Quarantine Officer of the Isthmian Canal Commission and later Director of Hospitals. Here Dr. Carter lived from June, 1904, until September, 1909. By proclamation, dated July 16, 1936, J. L. Schley, Governor of the Canal Zone, designated the roadway as Carter Place, honoring one of the Service's most beloved and distinguished officers.

In his citation, Governor Schley said, "Dr. Carter was recognized as one of the most efficient and valuable of the Department of Sanitation personnel during the construction period; his work contributed largely to the successful organization of the Department of Sanitation and its hospitals and quarantine service and to the early control of infectious diseases so largely prevalent at the time of the inception of the work."—*Health Officer*, Sept., 1936.

HEALTH COMMITTEE APPOINTED FOR NEW YORK WORLD'S FAIR

THE Advisory Committee on Medicine and Public Health, one of the first of the technical committees of the New York World's Fair, has been appointed. This committee includes 3 members of the American Public Health Association Committee on American Museum of Hygiene. It is expected, therefore, that plans for the health exhibit at the Fair will be correlated with those of our committee for a permanent museum of hygiene in America. Members of the committee are:

Louis I. Dublin, Ph.D.,* *Chairman*
James R. Reuling, Jr., M.D., *Vice-Chairman*
Homer N. Calver,* *Secretary*
John L. Rice, M.D.
S. S. Goldwater, M.D.
George Baehr, M.D.
Victor G. Heiser, M.D.*

* Members of American Public Health Association Committee

As Chairman, Dr. Dublin, who sailed September 5 for Europe, was authorized to extend an invitation to international health and medical agencies to meet in New York at the time of the Fair. The Secretary of the committee, Mr. Calver, has just returned from a study in Germany of health museums and expositions. The study was financed by a grant from the Oberlaender Trust.

A tentative plan of the medical and health exhibits has been prepared. Early this fall a meeting of representatives of all local and national agencies concerned will be held to complete organization and exhibit plans.

NURSES NOTE!

CHANGE of date and program for The Nurses' Session at the National Safety Congress and Exposition to be held in coöperation with the National Organization for Public Health Nursing, at Atlantic City, N. J. Time of Meeting—Wednesday, October 7, 1936, at 9:45 A.M. Topic—Panel Discussion—"Industrial Nursing Pays in Relation to Industrial Health and Safety."

TABULATION OF HEALTH DEPARTMENT SERVICES

REQUESTS are not infrequently received by the Association for advice and assistance in the preparation of forms for tabulating services rendered by health departments. Because of great diversity in procedure, it is gratifying to find published a report of the Committee on Records and Reports of the State and Territorial Health Officers and the U. S. Public Health Service, as published in *Public Health Reports* for September 4, 1936, page 1236.

This committee, reporting in April, 1936, presents a suggested list of items to be tabulated by local health officers, together with covering definitions and

instructions. It is believed that this is the first occasion on which official sanction has been given to report forms and definitions of this kind. It should prove helpful not only to state health departments desiring to conform to the usages of the U. S. Public Health Service and the Children's Bureau, but it should be useful alike to any health department wishing to present its material in an orderly fashion and under definitions which will make the tables more comparable with other agencies than previously has been the case.

BRITISH MEDICAL ASSOCIATION

THE 104th annual meeting of the British Medical Association was held in Oxford, England, July 17–25, under the Presidency of Sir James Barrett, of Melbourne, Australia. Prof. Robert J. Johnstone, Queens University, Belfast, Ireland, was named President-Elect, and Sir E. Farquhar Buzzard, of Oxford, was inducted into the presidency.

MICHIGAN HAS NEW LABORATORY

A NEW laboratory building for the State Department of Health is under construction 4 miles north of Lansing. This is a WPA project. All departments of laboratory work will be carried on in the new structure. C. C. Young, D.P.H.,* Lansing, is in charge of the State Department Laboratory.

NEW WISCONSIN HEALTH UNITS

DR. C. A. HARPER, State Health Officer, Madison, Wis., announces that the state has been divided into 9 district health units, together with 3 county units, of which 1 is actually in operation. These units, which cover the entire state, have been created in coöperation with the U. S. Public Health Service.

Prior to the Social Security Act, there were 5 district health units in Wisconsin. At present each district unit consists of a medical director, a sanitary engineer, a certified public health nurse and an office secretary. The county unit consists of a personnel of 4 and the choice is given to the county whether they desire a sanitary engineer or a sanitarian.

The health officers for the 9 districts and the county units are as follows: (1) Dr. G. W. Henika, Madison; (2) Dr. G. E. Hout, Elkhorn; (3) Dr. V. A. Gudex, Fond du Lac; (4) Dr. E. H. Jorris, Mauston; (5) Dr. L. M. Morse, Neillsville; (6) Dr. Allan Filek, Green Bay; (7) Dr. F. P. Daly, Chippewa Falls; (8) Dr. R. L. Frisbie, Rhinelander; (9) Dr. John W. Lowe, Ashland. County Unit—Dr. Harold W. Fechtner, Wausau.

DRS. PARK AND SENIOR RETIRE

DR. WILLIAM H. PARK,* Hermann N. Biggs Professor of Preventive Medicine, and Dr. Harold Dickinson Senior, Professor of Anatomy, at New York University College of Medicine, retired from the faculty September 1 as professors emeritus. Dr. Park has been connected with the college since 1893, and Dr. Senior since 1910.

ARMY MEDICAL LIBRARY ANNIVERSARY

THERE will be a celebration of the One Hundredth Anniversary of the founding of the Army Medical Library, of Washington, on November 16. The ceremonies will take place in the Library Building.

PERSONALS

DR. ALFRED F. SMITH, of Georgetown, Ky., has been appointed Health Officer of Greenup County, succeeding Carl M. Gambill, M.D.†

DR. JOSEPH J. REPA, of Cresson Pa., has joined the staff of the Alabama

* Fellow A.P.H.A.
† Member A.P.H.A.

State Department of Health as full-time Pediatrician.

DR. HENRY P. WORSTELL, of Columbus, Ohio, has been appointed Orthopedic Consultant to the medical division of the State Industrial Commission.

DR. JOHN S. ANDERSON, of New Bern, N. C., has been appointed Health Officer of Craven County.

DR. JOHN C. DECKER, of Portola, Calif., has been appointed Health Officer of Plumas County, succeeding Dr. Wilbur C. Batson, of Greenville.

DR. JAMES F. LYNN recently resigned as President of the Board of Health of Waseca, Minn., to which position he was elected in 1931.

DR. ALBERT C. EDWARDS, of Sheboygan, Wis., has been appointed Epidemiologist for the Wisconsin State Board of Health.

DR. WILLIAM T. BOOHER, JR., of Wellsburg, W. Va., has been appointed Health Officer of Brooke County, to succeed Dr. Leonard J. Bernstein, resigned.

DR. WILLIAM J. FRENCH, formerly of Ellicott City, since 1932 Health Director of Howard County, has been appointed to a similar position with Anne Arundel County, Md., succeeding Dr. John H. Janney, Jr., of Annapolis.

DR. GERALD WENDT has been announced as Director of the American Institute of the City of New York, to succeed L. W. Hutchins, resigned. Dr. Wendt is Editor of *Chemical Reviews*, a consulting chemist, and was formerly Assistant to the President of the Pennsylvania State College. The Institute was founded 108 years ago.

DR. JAMES R. KINGSTON, of Deer River, Minn., has been appointed Director of Public Health for the northern Minnesota district, with headquarters in Grand Rapids.

WILLIAM FELLOWES MORGAN has been reëlected President of the National Society for the Prevention of Blindness, of New York, N. Y.

WALTER A. MINSCH, M.D., of Athens, Ala., has resigned as Health Officer of Limestone County.

WILLIAM J. B. OWINGS, M.D., of Vernon, Ala., has been appointed Health Officer of Escambia County, succeeding Dr. Edward F. Goldsmith, Jr., of Brewton, resigned.

DR. MARY A. T. DEMOTTE, of Philipsburg, has been named Health Officer of Phillips County, Kans.

DR. GRANT R. HASTINGS, of Lakin, has been named Health Officer of Kearny County, Kans.

DR. CARL N. NEUPERT, of Janesville, Wis., has been appointed supervisor of public health service, a new position created under the social security plan for Wisconsin.

DR. LAWRENCE F. ISENHART has been named Health Officer of Mount Carroll, Ill., succeeding Dr. Samuel P. Colehour.

DR. NEIL F. BLACK, of the U. S. Public Health Service, stationed at San Francisco, Calif., has been appointed Health Officer of Klamath County, Ore.

DR. JOHN A. KAHL, of Portland, Ore., has been appointed Health Officer of Clark County, Wash., with headquarters at Vancouver.

DR. ROBERT C. FARRIER,† Morgantown, W. Va., has been appointed Health Officer of Delta County, with headquarters at Escanaba, Mich.

DR. LARS W. SWITZER, Ludington, Mich., has been placed in charge of the new health unit for Mason and Manistee Counties, Mich.

DR. JOHN A. CARTER, New Paris, Ohio, has been appointed Health Commissioner of Clermont County, Ohio.

DR. WILLIAM R. COLEMAN, Bremen, has been made Health Officer of Fairfield County, Ohio.

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* Fellow A.P.H.A.
† Member A.P.H.A.

DR. ARCHIE J. MARTIN, Wheeling, W. Va., has been appointed Health Officer of Belmont County, Ohio, to succeed Dr. Frank R. Dew.*

HEALTH DISTRICT OFFICERS IN SOUTH CAROLINA have been announced as follows: Dr. Clair A. Henderson, Williamstown, appointed Health Officer of the district composed of Dillon and Marion Counties; Dr. Goodman Bare, Starr, in charge of the district including Edgefield, McCormick, and Saluda Counties; and Dr. George H. Zerbst,† Charleston, of the district consisting of Sumter, Clarendon, and Lee Counties.

DR. ROBERT D. HOLLOWELL,† Charlottesville, Va., has been appointed Director of the health district including Albemarle County, Charlottesville, and the University of Virginia. He succeeds Dr. Charles Howe Eller,† recently appointed assistant director of the State Bureau of Rural Health.

DR. HUGH B. MAGILL, JR., Norfolk, Va., has been made director of the Northampton County Health Department, succeeding Dr. Albert B. McCreary,† Eastville, who resigned to join the Florida State Department of Health.

DR. DANIEL C. STEELSMITH, South Boston, has become head of Halifax County Health Department, Va., and Dr. William H. Walcott, Chatham, head of Pittsylvania County Health Department. Formerly these departments were combined.

DR. CHARLES A. O'QUINN, Perry, Fla., has been appointed in charge of the health unit in Taylor County, Fla.

DR. THOMAS T. ROSS, Arkadelphia, Health Officer of Clark County, Ark., has been appointed assistant director of the State Department of Health, in charge of the Division of Maternal and Child Health.

DR. JESSE K. GRACE,† Danville, Ark., has become Health Officer of Clark County, Ark. It is reported that a district health department is proposed consisting of Clark, Nevada, and Hempstead Counties.

FLORIDA appointments as district health officers are reported as follows: Drs. James W. McMurray, with headquarters at Marianna; Rayburn N. Joyner, Jacksonville; and Joseph S. Spoto, Ocala.

DR. THOMAS M. FLY, Hot Springs National Park, Ark., has been appointed Health Officer of Little Rock to succeed Dr. Verdo T. Webb, resigned.

DR. THURMAN B. RICE,† Indianapolis, Ind., has resigned as assistant director of the State Department of Health, and has been succeeded by W. T. Frazier, Bluffton, executive engineer of the department. Dr. Rice will continue to act as director of the health and physical education department. He will also continue as editor of the department's bulletin.

DR. REGNAR M. SORENSEN, Drakesville, Iowa, has been appointed Health Officer of the newly opened health unit in Washington County.

DR. ARTHUR C. SCHACH, Burlington, Iowa, has been appointed director of the reorganized health unit for Des Moines County, with headquarters at Burlington.

DR. CHARLES A. GEORGE has been appointed Commissioner of Health of Springfield, Mo.

DRS. HARRY L. CHANT,† Hornell, N. Y., and EDWIN L. CROSBY, JR.,† Schenectady, have been provisionally appointed assistant district health officers of the State Department of Health, assigned to the Hornell and Albany districts respectively. Dr. Gordon R. Gray, Gouverneur, has

* Fellow A.P.H.A.
† Member A.P.H.A.

been appointed assistant epidemiologist with headquarters at Amsterdam.

DR. THOMAS G. FAISON, Winton, N. C., has been appointed Health Officer of Hertford County's new department of health.

DR. WILLIAM B. HUNTER, Lillington, N. C., has been named Health Officer of Harnett County, N. C.

DR. RALPH G. BEACHLEY,* Chestertown, Md., has been appointed director of the southwest division of the Virginia State Health Department. He succeeds Dr. Edgar C. Harper,† Richmond, who has been appointed head of the State Bureau for Crippled Children.

DR. JOHN CARLISLE NEALE, JR.,† formerly Health Officer of Henrico County, Va., has been appointed Health Officer of Augusta County, Va.

DR. RALPH E. STEVENS, Health Officer of St. Petersburg, has been named chief physician at the Florida State Hospital, Chattahoochee, succeeding Dr. James H. Pound, resigned.

DR. THOMAS E. MORGAN, Jacksonville, Fla., has been appointed in charge of the newly organized health unit in Pinellas County, with headquarters in Clearwater.

DR. JAMES WILLARD MCMURRAY, Bartow, Fla., has been appointed District Health Officer of West Florida, with headquarters in Marianna.

DR. MARION W. CASKEY,† Taylorville, Ky., has been appointed head of a new health unit at Lewiston, Idaho, one of ten to be established in the state. Dr. Lester C. Krotcher, Coeur d'Alene, has been placed in charge of a unit in Twin Falls, Idaho.

DR. FREDERICK G. NOVY, Dean Emeritus and Professor Emeritus of Bacteriology, University of Michigan School of Medicine, Ann Arbor, received the honorary degree of Doctor of Laws at the 92nd commencement of the University of Michigan. This was the 50th anniversary of Dr. Novy's graduation from the university.

DR. HARRIET BIXBY, Boston, has been appointed state bacteriologist and Dr. August Orr, Sarles, director of the Child Hygiene Division of the North Dakota State Department of Health. Dr. Bixby succeeds A. W. Eckland, Bismarck, resigned. Dr. Orr's appointment marks the re-establishment of the Division of Child Hygiene with Social Security funds, after a lapse of several years.

DR. CYRUS R. WOOD, Port Clinton, Ohio, has been appointed Health Officer of Ottawa County, to succeed the late Dr. Charles B. Finefrock.

DR. HUBERT R. OWENS, Wedowee, Ala., has been appointed Health Officer of Winston County.

DR. FRANK M. HALL, formerly of Leeds, Ala., has been appointed Health Officer of Limestone County.

DR. MARTLE F. PARKER, Boaz, Ala., has been made Health Officer of Monroe County.

DR. ADDIE M. LYON, Frankfort, Ky., has been appointed Health Officer of Lawrence County.

DR. LEE A. DARE, Ashland, Ky., has been appointed Health Officer of Anderson County to succeed the late Dr. Squire R. Boggess,† Lawrenceburg.

DR. WALTER E. MERCER, for 4 years Health Officer of Webberville, Mich., has been placed in charge of the Bureau of Child Health of the Lansing Department of Health.

DR. CECIL C. SMITH, of Indianola, Miss., formerly Director of the Sunflower County Health Department, has been placed in charge of the Pearl River County Health Department, Poplarville.

* Fellow A.P.H.A.
† Member A.P.H.A.

DR. HAROLD M. KELSO,† Gallatin, formerly Health Officer of Sumner County, Tenn., is in charge of a new district health unit including the Counties of Fentress, Pickett, Clay, Putnam, and Jackson.

DR. PHILLIP MCGINNES has been appointed Health Officer of Joliet township, Ill., to succeed Dr. Londus Brannon who resigned.

GEORGE F. FORSTER, PH.D.,† Professor of Biology at Olivet College, Olivet, Mich., has been appointed bacteriologist to the State Department of Health. He will be on leave of absence from the college for a year.

COL. HENRY C. PILSBURY,† Medical Corps, U. S. Army, has become Chief Health Officer of the Panama Zone. He will be in charge of sanitation and hospital service, stationed at Balboa.

DR. JOHN W. WILLIAMS, JR.,† Springfield, Mo., Health Officer of Greene County for the past 11 years, has been appointed director of rural health with the State Board of Health under the Social Security Program. Dr. Lynn M. Garner,† Health Officer of Miller County, has succeeded Dr. Williams in Greene County.

DR. CLARENCE E. SHERWOOD, Madison, S. D., has been appointed Health Officer of Lake County, to succeed the late Dr. Emerson W. Goldman.

DR. JOHN W. LOWE,† Merrillan, Wis., has been appointed Health Supervisor of the district including Ashland, Bayfield, Burnett, Douglass, Iron, Sawyer, and Washburn Counties, with headquarters at Ashland.

DR. VAUGHN L. HARTMAN, Medina, Ohio, has been appointed Commissioner of Health of Medina County.

C. H. BENNING, M.D., C.P.H.,* recently Deputy Commissioner of Health of Oakland County and Director of Health of the Royal Oak District, Mich., since 1927, has become Director of School Health in Peoria, Ill.

MARGUERITE WALES, R.N.,* has resigned as General Director of the Henry Street Visiting Nurse Service, New York, N. Y., and will join the staff of the W. K. Kellogg Foundation of Battle Creek, Mich., to undertake a study of rural nursing problems in relation to the Foundation's program for the advancement of child health and welfare. Elizabeth J. Mackenzie, formerly Associate Director, will serve as Acting General Director in Miss Wales's place.

DR. WADE WRIGHT

DR. WADE WRIGHT, member A.P.H.A., of Roxbury, Conn., died August 25, after a long illness.

He was with the American Expeditionary Forces overseas and was Deputy Commissioner in charge of the medical relief commission sent by the American Red Cross to the Polish front in the typhus zone.

He became instructor in Industrial Medicine at the Harvard Medical School and was for several years in charge of the Industrial Clinic operated by Harvard as a department for clinical research in occupational disease problems at the Massachusetts General Hospital, Boston.

In 1924, Dr. Wright was appointed Assistant Medical Director of the Metropolitan Life Insurance Company to organize its Industrial Health Service for group policyholders. He retired from the Metropolitan in 1930 because of ill health.

Dr. Wright was Chairman of the Industrial Hygiene Section of the American Public Health Association 1921–1922.

* Fellow A.P.H.A.
† Member A.P.H.A.

DEATHS

THE death of PROF. JULIUS TANDLER in Moscow, Russia, was announced August 26. Professor Tandler had frequently lectured in the United States and was head of the Russian Health Institute as well as former head of the Vienna University Faculty and Austrian Federal Minister of Health. Dr. Tandler was Commissioner of Health, Hospitals and Public Welfare in Vienna for more than 10 years. During his administration he divided the city into 200 districts, each with a practising nurse, and he was active in the establishment of kindergartens in which care was given to the children of poor parents. Dr. Tandler was also active in the establishment of marriage advice bureaus in Vienna. At one time he was Professor of Anatomy at the University of Vienna and had wide interests in the matter of public hospitals and asylums and in the problem of alcoholism.

FRANKWOOD E. WILLIAMS, M.D., formerly Medical Director of the National Committee of Mental Hygiene, and subsequently in private practice in New York City, died September 24.

DR. FRANK G. ATWOOD,† New Haven, Conn., bacteriologist and veterinarian, died on September 14.

† Member A.P.H.A.

CONFERENCES AND DATES

Sixty-fifth Annual Meeting of the American Public Health Association, New Orleans, La. Meetings Headquarters, Municipal Auditorium; Residence Headquarters, Hotel Roosevelt. Oct. 20–23 (Tues., Wed., Thurs., Fri.).

Associations meeting with the A.P.H.A. —New Orleans, La., Oct. 20–23:

- American Association of School Physicians.
- American Association of State Registration Executives.
- Association of Women in Public Health.
- Conference of State Laboratory Directors (Oct. 19).
- International Society of Medical Officers of Health.
- National Committee of Health Council Executives.
- State Conference of Sanitary Engineers (Oct. 19–21).
- State Registration Executives.

American Association of School Physicians. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

American Association of State Registration Executives. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

American Water Works Association:

- Missouri Valley Section. Iowa City, Ia. Oct. 26–28.
- New Jersey Section—Joint Convention with the New Jersey Association of Water Superintendents. Hotel Ambassador, Atlantic City, N. J. Oct. 23–24.
- New York Section. Saratoga Springs, N. Y. Oct. 15, 16.
- Southwest Section. Hotel Goldman, Fort Smith, Ark. Oct. 12–15.

Army Medical Library. Celebration of the One Hundredth Anniversary of the Founding. Library Building, Washington, D. C. Nov. 16.

Association of Military Surgeons. Detroit, Mich. Oct. 29–31.

Association of Women in Public Health. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

Canadian Dental Association. Montreal, Que. Oct. 12–13.

Civil Service Assembly of the United States and Canada. Cincinnati, Ohio. Oct. 21–24.

(*Conferences continued on page 1070*)

Best Sellers in the Book Service for August

Preventive Medicine and Hygiene—Milton J. Rosenau, M.D. (6th ed.)	$10.00
An Introduction to Public Health—Harry S. Mustard, M.D.	2.50
Public Health Administration in the United States—W. G. Smillie, M.D.	3.50
Public Health Nursing—Mary Sewall Gardner, R.N., A.M. (3d ed.)	3.00
The Essentials of Swimming Pool Sanitation—C. A. Scott, B.P.E.	1.00
The Legal Aspects of Milk Control—James A. Tobey, Dr.P.H.	3.00
Standard Methods for the Examination of Water and Sewage—A.P.H.A. (8th ed.)	2.50

Order from the Book Service

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in the regular or deluxe edition

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Conference of State Laboratory Directors. Hotel Roosevelt, New Orleans, La. Oct. 19.

Conference of State Sanitary Engineers. New Orleans, La. Oct. 19–21.

Dairy Industries Exposition. Atlantic City, N. J. Oct. 12–17.

Dairy Show, Centennial Exposition. Atlantic City, N. J. Oct. 17–25.

Fire Prevention Week. Oct. 6–12.

International City Managers' Association. Richmond, Va. Oct. 19–21.

International Society of Medical Officers of Health. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

Interstate Commission on the Delaware River Basin—Public Meeting, on Water Supply, Flood Control, and Pollution. Buckwood Inn, Shawnee-on-the-Delaware, Pa. Oct. 2–3.

Malaria, Third International Congress on. Madrid, Spain. Oct. 12–18. *Adjourned because of unrest in Spain.*

Missouri Public Health Association. Columbia, Mo. Oct. 1–3.

National Association of Exterminators and Fumigators. Cleveland, Ohio. Oct. 26–28.

National Committee of Health Council Executives. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

National Dairy Show, National Dairy Association. Dallas, Tex. Oct. 10–18.

National Rehabilitation Association. San Antonio, Tex. Oct. 26–30.

National Safety Council—Annual Safety Congress and Exposition. Atlantic City, N. J. Oct. 5–9.

New Jersey Association of Water Superintendents—Joint Convention with the New Jersey Section, American Water Works Association. Hotel Ambassador, Atlantic City, N. J. Oct. 23–24.

New Jersey Health and Sanitary Association, Inc.—Sixty-second Annual Meeting. Hotel Woodrow Wilson, New Brunswick, N. J. Nov. 20–21.

New York State Association of Public Health Laboratories. New York State Laboratory. Albany, N. Y., Nov. 6.

New York State Sewage Works Association. Geneva, N. Y. Oct. 9–10.

Ontario Hospital Association. Toronto, Ont. Oct. 21–23.

Pennsylvania Water Works Association. Haddon Hall, Atlantic City, N. J. Oct. 14–16.

Public Ownership League of America. Abraham Lincoln Hotel. Springfield, Ill. Oct. 15–17.

Southern Tuberculosis Conference. Hot Springs, Ark. Oct. 1–3.

State Conference of Sanitary Engineers. Hotel Roosevelt, New Orleans, La. Oct. 19–21.

State Laboratory Directors, Conference of. Hotel Roosevelt, New Orleans, La. Oct. 20–23.

Texas Public Health Association. Kilgore Hotel, Kilgore, Tex. Oct. 14–16.

Third International Congress on Malaria. Madrid, Spain. Oct. 12–18. *Adjourned because of unrest in Spain.*

Water Supply, Flood Control, and Pollution—Public Meeting of the Interstate Commission on the Delaware River Basin. Buckwood Inn, Shawnee-on-the-Delaware, Pa. Oct. 2, 3.

West Virginia Public Health Association. Wheeling, W. Va. Oct. 12–14.

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PRELIMINARY PROGRAM

SIXTY-FIFTH ANNUAL MEETING

American Public Health Association

NEW ORLEANS, OCTOBER 20-23, 1936

THE AMERICAN PUBLIC HEALTH ASSOCIATION
50 West 50th Street New York, N. Y.

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PRELIMINARY PROGRAM OF THE SIXTY-FIFTH ANNUAL MEETING AMERICAN PUBLIC HEALTH ASSOCIATION

NEW ORLEANS, LA., OCTOBER 20–23, 1936

THE Annual Meeting Program Committee presents the Preliminary Program of the scientific sessions of the Sixty-fifth Annual Meeting of the American Public Health Association and information concerning meetings of related organizations.

This program is incomplete and perhaps inaccurate in some respects. The affiliations of speakers have been omitted, but will be published in full in the Final Program. Delegates are urged to consult the Final Program, available at the Registration Desk in the Auditorium at the time of the meeting.

Tuesday, 9:30 A.M.

MENTAL HYGIENE

Special Session—Auditorium, Auditorium

Presiding: GRANT FLEMING, M.D.

The Mental Hygiene Component of Baby Hygiene Clinics in Baltimore. RUTH FAIRBANK, M.D.

Practicability and Results of Mental Hygiene in a School System. CHARLES E. SHEPARD, M.D.

Mental Hygiene in a Public Health Program. W. T. B. MITCHELL, M.D.

Practical Aspects of Public Mental Hygiene. B. LIBER, M.D.

Mental Hygiene Service in a City Department of Health. ERIC KENT CLARKE, M.D.

Mental Hygiene in a Provincial Health Department. B. T. MCGHIE, M.D.

VITAL STATISTICS

First Session—Committee Room 58, Auditorium

Training of Vital Statisticians. JOHN SUNDWALL, M.D., PH.D.

The Rôle of Vital Statistics in Medical Science. W. F. WALKER, DR.P.H.

What Is Wrong with Our Computation of Automobile Fatality Rates? HENRY L. PORSCHE and PHILLIP STEIN.

A Preliminary Report of the Health Inventory of Cities. GEORGE ST. J. PERROTT.

Tuesday, 9:30 A.M.

PUBLIC HEALTH ENGINEERING SECTION AND CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—Concert Hall, Auditorium

Presiding: JOHN H. O'NEILL, *Chairman,* Conference of State Sanitary Engineers.

Résumé of Activities Tending Toward a National Program of Stream Pollution Control. R. E. TARBETT.

The Interstate Sanitation Compact and Its Implications. C. A. HOLMQUIST.

Discussion. ELLIS S. TISDALE and ARTHUR D. WESTON.

Revised Standards for Design and Sanitation of Bathing Places. (Progress Report of the Joint Committee on Bathing Places.) *Chairman,* W. J. SCOTT.

Hot Air Sterilization of Milk Utensils. (Report of the Joint Committee on Milk Supply.) *Chairman,* C. A. HOLMQUIST.

Water Storage, Conditioning and Cleansing of Shellfish. (Report of the Committee on Shellfish.) *Chairman,* L. M. FISHER.

Progress Report of the Joint Committee on Plumbing. *Chairman,* J. I. CONNOLLY.

Announcements.

FOOD AND NUTRITION

First Session—Committee Room 339, Auditorium

Presiding: WALTER S. FRISBIE, *Vice-Chairman,* Food and Nutrition Section.

Report of the Committee on Foods. *Chairman,* B. E. PROCTOR, PH.D.

Problems in Food Preservation. Address of the *Section Chairman,* FRED W. TANNER, PH.D.

Shrimp Inspection. J. O. CLARKE.

Inspection of Cream for Butter Making. SARAH VANCE DUGAN.

Rodent Control in Food Establishments. ROY C. MOORE.

Meat Sanitation. L. B. JENSEN, PH.D.

Use of Apple Powder in the Prevention and Cure of Summer Diarrheas. IRA A. MANVILLE, M.D., PH.D.

AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

First Session—Assembly Hall North, Auditorium

For program see page 21.

Tuesday, 9:30 A.M.

EPIDEMIOLOGY

First Session—Assembly Hall South, Auditorium

Epidemiological Studies in Influenza. THOMAS FRANCIS, JR., M.D.

New Epidemiological and Immunological Studies of Rabies. LESLIE T. WEBSTER, M.D.

A Contribution to the Epidemiology of Measles. FRANKLIN H. TOP, M.D.

Immunity to Virus Diseases. ERNEST W. GOODPASTURE, M.D.

LABORATORY

First Session—Memorial Hall North, Auditorium

Presiding: RUTH GILBERT, M.D., *Chairman,* Laboratory Section.

Address of the *Chairman* of the Laboratory Section. RUTH GILBERT, M.D.

Section Business:

Report of the Committee on Scientific Exhibits. *Chairman,* FRED O. TONNEY, M.D.

Report of the Committee on Aspects of Veterinary Public Health. *Chairman,* R. V. STONE, D.V.M.

Report of the Committee on Biological Products. *Chairman,* WILLIAM H. PARK, M.D.

Report from Section Archivist. A. B. WADSWORTH, M.D.

Report of the Coördinating Committee on Standard Methods. *Chairman,* MAJOR A. PARKER HITCHENS, M.D.

Report of the Standard Methods Committee on Diagnostic Procedures and Reagents. *Chairman,* W. D. STOVALL, M.D.

Report of Representatives of Committees Outside of the Laboratory Section and Other Special Reports.

Tuesday, 10:30 A.M.

(Second Session—Meeting concurrently in Memorial Hall South, Auditorium)

The Virus of Lymphogranuloma Inguinale. RIGNEY D'AUNOY, M.D.

New Methods for the Laboratory Diagnosis and Treatment of Gonococcal Infections. CHARLES M. CARPENTER, M.D. *(Motion Picture.)*

Tuesday, 10:30 A.M.

LABORATORY

Second Session—Memorial Hall South, Auditorium

(Please note this session begins at 10:30. From 9:30 to 10:30 the Laboratory Section is requested to convene in Memorial Hall North for the conduct of section business.)

Presiding: W. D. STOVALL, M.D., *Vice-Chairman,* Laboratory Section.

A Laboratory Technic for Sanitary Air Analysis. W. F. WELLS.

Normal Sheep Cell Amboceptor in Wassermann Sera. C. A. STUART, PH.D., and HENRY WELCH, PH.D.

Human Deaths from Rabies and the Efficacy of Rabies Vaccine. Author to be selected.

Rabies in Louisiana. RIGNEY D'AUNOY, M.D., and JOHN H. CONNELL, M.D.

Tuesday, 12:30 P.M.

INDUSTRIAL HYGIENE

Luncheon Session—Room E, Hotel Roosevelt

Report of the Committee on Standard Practices in the Problem of Compensation of Occupational Diseases. *Chairman,* HENRY H. KESSLER, M.D., PH.D.

PUBLIC HEALTH EDUCATION

Luncheon Session—Dome Room, Hotel Roosevelt

Presiding: W. W. BAUER, M.D., *Chairman,* Public Health Education Section.

Use of the Department in the Journal Devoted to Health Education. EVART G. ROUTZAHN.

DIPHTHERIA IMMUNIZATION

Luncheon Session—Tip Top Room, Hotel Roosevelt

Preliminary Report of the Committee on Diphtheria Immunization Study.

EDWARD S. GODFREY, M.D.
DONALD T. FRASER, D.P.H.
V. K. VOLK, M.D.
G. FOARD MCGINNES, M.D.
WILLIAM H. PARK, M.D.
WALTER T. HARRISON, M.D.
W. E. BUNNEY, PH.D.

Tuesday, 2:30 P.M.

STATE REGISTRATION EXECUTIVES

Assembly Hall North, Auditorium

ADVANCES IN PUBLIC HEALTH

Special Session—Concert Hall, Auditorium

Presiding: ROBERT E. WODEHOUSE, M.D.

Recent Advances in Administrative Technic. HENRY F. VAUGHAN, DR.P.H.

Recent Advances in the Control of Pneumonia. RUFUS COLE, M.D.

Recent Trends in Engineering Practice. ABEL WOLMAN.

Recent Progress in Health Education Methods. WILLIAM P. SHEPARD, M.D.

Recent Contributions to Laboratory Methods. W. D. STOVALL, M.D.

Housing as a Public Health Problem. C.-E. A. WINSLOW, DR.P.H.

Tuesday, 6:30 P.M.

ASSOCIATION OF WOMEN IN PUBLIC HEALTH

Dinner Session—Gold Room, Hotel Roosevelt

Tuesday, 7:00 P.M.

SOUTHERN BRANCH—AMERICAN PUBLIC HEALTH ASSOCIATION

Dinner—Tip Top Room, Hotel Roosevelt

Tuesday, 8:00 P.M.

FIRST GENERAL SESSION

Concert Hall, Auditorium

Invocation. DEAN W. H. NES, Christ Church Cathedral, New Orleans, La.

Addresses of Welcome:
J. M. BATCHELOR, M.D.
ALFRED D. DANZIGER
J. A. O'HARA, M.D.
F. R. GOMILA, M.D.

Address of the President-elect of the American Public Health Association. THOMAS PARRAN, M.D.

Announcement of the Sedgwick Memorial Medal Award

Reception to the President and the President-elect.

Dancing.

Wednesday, 8:00 A.M.

YALE ALUMNI

Breakfast Session—Room E, Hotel Roosevelt

HARVARD UNIVERSITY ALUMNI

Breakfast Session—Room G, Hotel Roosevelt

Wednesday, 9:30 A.M.

HEALTH OFFICERS

First Session—Concert Hall, Auditorium

Statistical Study of Deaths in New Orleans since 1850. A. E. FOSSIER, M.D.

Discussion. J. M. BATCHELOR, M.D.

Relation of Bovine Mastitis to Human Disease. PAUL B. BROOKS, M.D., and WALTER VON D. TIEDEMAN.

The Need for and Value of an Intensive Program of Health Education in State Health Departments. FELIX J. UNDERWOOD, M.D.

Public Health Problems in Leprosy. H. E. HASSELTINE, M.D.

PUBLIC HEALTH ENGINEERING

First Session—Memorial Hall South, Auditorium

Observations on the Use of Copper and Chloramines in Water Purification. A. E. GRIFFIN.

Institutional and Other Small Water Treatment Plants to Meet Unusual Conditions. F. R. SHAW.

Further Study of Water-borne Typhoid Fever Outbreaks—1930-1935. (Report of the Committee on Water Supply.) *Chairman,* A. E. GORMAN.

Recent Developments Regarding Disposal of Pulp and Paper Mill Wastes. C. M. BAKER.

Discussion. C. E. GREEN.

Progress Report of the Committee on Waterways Pollution. *Chairman,* L. F. WARRICK. To be presented by title only.

Section Business.

Report of the Section Committee on Fellowship and Membership. *Chairman,* MORRIS COHN.

Public Health Engineering Content of an American Museum of Hygiene. GORDON M. FAIR.

Report of Section Nominating Committee and Election of Officers.

Wednesday, 9:30 A.M.

LABORATORY

Third Session—Committee Room 103—Auditorium

Presiding: RUTH GILBERT, M.D., *Chairman,* Laboratory Section.

International Biological Standardization. GEORGE W. MCCOY, M.D.

Laboratory Problems in the Control of Meningococcus Meningitis. ROSS L. LAYBOURN.

Laboratory Diagnosis of Meningitis Outbreaks. MAJOR A. PARKER HITCHENS, M.D.

Culturing of Meningococci. LUTHER THOMPSON, PH.D.

Active and Passive Immunization Against Tularemia. H. J. SHAUGHNESSY, PH.D., T. C. GRUBB, and ALBERT C. FAUTH.

The Standardization of Typhoid and Paratyphoid Vaccines. 1. The Value of the Gates Apparatus and Total Nitrogen Determination. ROY F. FEEMSTER, M.D., DR.P.H., LESLIE H. WETTERLOW, B.S., and JOSEPH CIANCIARULO, PH.C.

The Growth of Bacteria in Body Fluids. ANNA DEAN DULANEY, PH.D.

The Current Incidence of C. Diphtheriae Mitis and Gravis. (*Illustrated.*) JOHN L. WHITE, M.D.

INDUSTRIAL HYGIENE

First Session—Committee Room 339, Auditorium

Address of the Chairman. ALBERT S. GRAY, M.D.

Review of Research Methods and Progress in Industrial Sanitation. THEODORE HATCH.

Industrial Hygiene Study of Foundry Industry in New York State. LEONARD GREENBURG, M.D., PH.D.

Compensation Aspects of Occupational Diseases. WESLEY GRAFF.

Importance of the Supervisor in the Industrial Health Program. LEVERETT D. BRISTOL, M.D.

Section Business.

PUBLIC HEALTH EDUCATION

First Session—Memorial Hall North, Auditorium

The Newspaper-Science in the Press—The Daily, the Weekly, and the Interests of the Readers of Each. HOWARD BLAKESLEE.

Discussion.

The Radio. JUDITH WALLER.

Discussion. ELIZABETH C. NICKERSON and HENRY F. VAUGHAN, DR.P.H.

Wednesday, 9:30 A.M.

FOOD AND NUTRITION AND LABORATORY SECTIONS

Joint Session—Auditorium, Auditorium

SYMPOSIUM ON MILK AND DAIRY PRODUCTS

Presiding: FRED W. TANNER, PH.D., *Chairman,* Food and Nutrition Section and ROBERT S. BREED, PH.D., *Chairman,* Standard Methods Committee on Milk and Dairy Products.

Regulations, Standards and Manufacturing of Ice Cream. (Report of Committee on Milk and Dairy Products, Food and Nutrition Section.) F. W. FABIAN, PH.D.

Discussion. W. B. PALMER, *Chairman.*

Methods and Significance of Cream and Butter Sediment Test. E. H. PARFITT.

Some Problems in the Sanitary Control of Counter Ice Cream Freezers. C. A. ABELE.

Proposed Changes in the Standard Methods for the Examination of Milk. ROBERT S. BREED, PH.D.

Report of the Committee on Vitamin D Milk. *Chairman,* E. M. NELSON, PH.D.

CHILD HYGIENE

First Session—Assembly Hall South, Auditorium

Maternal Mortality at the Chicago Maternity Center. BEATRICE E. TUCKER, M.D., and HARRY B. W. BENARON, M.D.

Infant Mortality in New York City. JOHN L. RICE, M.D., MARGARET W. BARNARD, M.D., THOMAS J. DUFFIELD, and JULES BLUMENTHAL, M.D.

Infant and Maternal Welfare from the Aspect of Social Security. MARTHA ELIOT, M.D.

PUBLIC HEALTH NURSING

First Session—Assembly Hall North, Auditorium

Section Business.

State Problems—Final Report of the Committee to Study Public Health Nursing in State Health Departments. MARIAN SHEAHAN, R.N.

Discussion. PEARL McIVER, R.N., and NAOMI DEUTSCH, R.N.

Content for Section in American Museum of Hygiene.

STATE REGISTRATION EXECUTIVES

Committee Room 58, Auditorium

Wednesday, 12:30 P.M.

PUBLIC HEALTH EDUCATION

Luncheon Session—Dome Room, Hotel Roosevelt

Presiding: W. W. BAUER, M.D., *Chairman,* Public Health Education Section.

Public Health Around the World. CLAIR E. TURNER, DR.P.H.

DELTA OMEGA

Luncheon Session—Gold Room, Hotel Roosevelt

Wednesday, 2:30 P.M.

LABORATORY

Fourth Session—Assembly Hall South, Auditorium

SYMPOSIUM ON ENTERIC FEVERS

Presiding: W. D. STOVALL, M.D., *Vice-Chairman,* Laboratory Section, and MARION B. COLEMAN, *Referee,* for Serological and Bacteriological Procedures in the Diagnosis of Enteric Fevers.

Typhoid Vaccine Studies: II. Protective Antibodies in the Blood Serum of Vaccinated Individuals. Laboratory Staff of the Army Medical School, Washington, D. C. Presented by COLONEL J. F. SILER.

Discussion: T. F. SELLERS, M.D.

A Study of the Antigenic Fraction of Typhoid Bacilli Isolated from Carriers and Cases and the Antibody Content of the Serum of These Patients. LOIS ALMON and W. D. STOVALL, M.D.

Discussion: A. L. MACNABB, D.V.M.

Practical Procedures in the Laboratory Diagnosis of Typhoid and Related Fevers. T. F. SELLERS, M.D.

Discussion: RUTH GILBERT, M.D., and ROSS L. LAYBOURN.

Bacillary Dysentery in the United States. A. V. HARDY, M.D.

Discussion: G. FOARD MCGINNES, M.D., and ROSS L. LAYBOURN.

VI Antigen in Carrier Strains of Eberthella Typhosa. HENRY WELCH, PH.D., and FRIEND LEE MICKLE, SC.D.

Standards for Determining the Suitability of Bile Specimens for Detection or Release of Typhoid Carriers. F. C. FORSBECK, M.D., and HARRIET C. HOLLON.

Discussion: RUTH GILBERT, M.D.

AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Second Session—Concert Hall, Auditorium

For program see page 21.

Wednesday, 2:30 P.M.

VITAL STATISTICS

Second Session—Committee Room 58, Auditorium

Report of the Committee on Accident Statistics. ROBERT J. VANE, *Acting Chairman.*

Report of the Committee on Forms and Methods of Statistical Practice. *Chairman,* A. W. HEDRICH, SC.D.

Report of the Committee on Registration of Births Out of Wedlock. *Chairman,* J. V. DEPORTE, PH.D.

Report of the Committee to Study Death Certification. *Chairman,* MARJORIE T. BELLOWS.

Report of the Committee on Scientific Exhibits. *Chairman,* JESSAMINE S. WHITNEY.

Report of the Section Committee on American Museum of Hygiene.

Report of the Nominating Committee.

Reports are to be submitted in writing to the Secretary of the Vital Statistics Section and distributed prior to the meeting. The time will be devoted to discussion.

Election of Officers.

Suggestions for Improvement of Vital Statistics Section and Programs.

PUBLIC HEALTH ENGINEERING

Second Session—Memorial Hall South, Auditorium

Inaugurating Grade A Pasteurized Milk in the City of Chicago. HERMAN N. BUNDESEN, M.D.

Discussion. LESLIE C. FRANK.

Public Health Features in Milk Plant Layout. RALPH E. IRWIN.

Discussion. GEORGE W. PUTNAM.

A Study of Air Pollution in New York City. SOL PINCUS.

Discussion. E. B. PHELPS.

Report of the Committee on Sewage Disposal. *Chairman,* LANGDON PEARSE.

Report of the Committee on Municipal Public Health Engineering. *Chairman,* WILLIAM H. CARY, JR.

Report of the Committee on Promotion of Environmental Sanitation. *Chairman,* V. M. EHLERS.

Progress Report of the Committee on Summer Camps and Roadside Places. *Chairman,* E. D. RICH.

Wednesday, 2:30 P.M.

FOOD AND NUTRITION

Second Session—Assembly Hall North, Auditorium

Presiding: FRED W. TANNER, PH.D., *Chairman,* Food and Nutrition Section.

Mineral Elements in Metabolism. (*Report of Committee on Nutritional Problems.*) *Chairman,* D. B. JONES, PH.D.

Nutritional-Economics of Dietetic Calcium. F. L. GUNDERSON, PH.D.

Fundamentals of Dental Health. GUY S. MILLBERRY, D.D.S., and NINA SIMMONDS, D.Sc.

Recent Trends in Pellagra. WILLIAM DEKLEINE, M.D.

Rationale of Antirachitic Procedure. FRED O. TONNEY, M.D.

The Question of Acid and Alkaline Forming Foods. J. A. TOBEY, DR.P.H.

Diet and Resistance to Infection. A Review of Recent Studies. CHARLES F. CHURCH, M.D.

HEALTH OFFICERS, EPIDEMIOLOGY AND LABORATORY SECTIONS

Joint Session—Auditorium, Auditorium

SYMPOSIUM ON SYPHILIS

Presiding: JOHN P. KOEHLER, M.D., *Chairman,* Health Officers Section, KENNETH F. MAXCY, M.D., DR.P.H., *Chairman,* Epidemiology Section, and RUTH GILBERT, M.D., *Chairman,* Laboratory Section.

Administrative Aspects. J. N. BAKER, M.D.

Epidemiological Aspects. GEORGE H. RAMSEY, M.D.

Laboratory Aspects. A. H. SANFORD, M.D.

Discussion: To be opened by THOMAS PARRAN, M.D.

Wednesday, 6:30 P.M.

PUBLIC HEALTH ENGINEERING SECTION AND CONFERENCE OF STATE SANITARY ENGINEERS

Dome Room, Hotel Roosevelt

Annual Engineers Stag Dinner.

WILLIAM J. ORCHARD, *Toastmaster.*

PUBLIC HEALTH EDUCATION

Dinner Session—Room E, Hotel Roosevelt

Presiding: W. W. BAUER, M.D., *Chairman,* Public Health Education Section.

Business Session.

Wednesday, 6:30 P.M.

HEALTH OFFICERS

Dinner Session—Tip Top Room, Hotel Roosevelt

Presiding: JOHN P. KOEHLER, M.D., *Chairman,* Health Officers Section, and J. N. BAKER, M.D.

Thursday, 8:00 A.M.

JOHNS HOPKINS ALUMNI

Breakfast Session—Room E, Hotel Roosevelt

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

Breakfast Session—Room G, Hotel Roosevelt

ASSOCIATION OF SCHOOL PHYSICIANS

Breakfast Session—Room C, Hotel Roosevelt

Thursday, 9:30 A.M.

VITAL STATISTICS SECTION AND STATE REGISTRATION EXECUTIVES

Joint Session—Memorial Hall North, Auditorium

TESTS AND PROMOTION OF REGISTRATION OF BIRTHS AND DEATHS AND INTERPRETATION OF THEIR SIGNIFICANCE

Presentation of Problem and Methodology of Past—Federal and State. W. J. V. DEACON, M.D.

Analysis of Experiences Gleaned from Morbidity Surveys. SELWYN D. COLLINS, PH.D.

Survey of Methods of Testing Completeness of Registration. LOWELL J. REED, PH.D.

Institutional Mortality with Reference to Residence Allocation. ELIZABETH PARKHURST.

Proper Distribution and Duties of County and Local Registrars. LEONARD V. PHELPS.

CHILD HYGIENE

Second Session—Memorial Hall South, Auditorium

Round Table Discussion of Maternal and Child Health Problems with a View of Developing Greater Coöperation of Various Public and Private Agencies.

Business Meeting.

Thursday, 9:30 A.M.

LABORATORY

Fifth Session—Committee Room 103, Auditorium

Presiding: RUTH GILBERT, M.D., *Chairman,* Laboratory Section, ROBERT S. BREED, PH.D., and JOHN F. NORTON, PH.D.

Report of the Committee on Water Pollution Studies. *Chairman,* JAMES A. NEWLANDS.

Report of the Standard Methods Committee on Examination of Water and Sewage. *Chairman,* JOHN F. NORTON, PH.D.

Report of the Standard Methods Committee on Examination of Dairy and Food Products. *Chairman,* ROBERT S. BREED, PH.D.

Report of the Committee on Milk Pasteurization Studies. *Chairman,* GEORGE J. HUCKER, PH.D.

Nomenclature for the Colon Group. JOHN F. NORTON, PH.D., and ROBERT S. BREED, PH.D.

A Comparison of Solid with Liquid Media as a Means of Determining the Presence of Lactose Fermenting Bacteria in Pasteurized Milk. M. W. YALE, PH.D.

The Bacteriology of Septic Sore Throat Epidemics. GEORGE J. HUCKER, PH.D.

Discussion: JULIA M. COFFEY and JAMES G. MCALPINE, PH.D.

A Comparison of the Standard with the Modified Methylene Blue Reduction Technic. H. R. THORNTON, PH.D.

The Standardization of Tablets for Determining Methylene Blue Reduction in Milk. H. J. CONN, PH.D.

HEALTH OFFICERS AND PUBLIC HEALTH NURSING SECTIONS AND AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Joint Session—Auditorium, Auditorium

The Use of Lay Boards by Official Health Agencies. OLIVIA PETERSON, R.N.

Discussion. BURKE DIEFENDORF, M.D.

The Control of Pneumococcus Pneumonia. EDWARD S. ROGERS, M.D.

Care of Communicable Disease in the Home.

Public Health Nursing. ALMA C. HAUPT, R.N.

Health Officer. JOHN J. SIPPY, M.D.

Illinois School Health Activities. FRANK J. JIRKA, M.D.

Thursday, 9:30 A.M.

LABORATORY AND FOOD AND NUTRITION SECTIONS

Joint Session—Assembly Hall North, Auditorium

SYMPOSIUM ON FOOD POISONING

Presiding: FRED W. TANNER, PH.D., *Chairman,* Food and Nutrition Section, and STEWART A. KOSER, PH.D., *Referee,* Laboratory Diagnostic Procedures in the recognition of Various Food Poisonings, representing the Laboratory Section.

Consumer Claims and Their Economic Importance to the Food Processing Industries. R. W. PILCHER, PH.D.

Epidemiology and Symptomatology of Staphylococcus Food Poisoning: A Report of Recent Outbreaks. GEORGE A. DENISON, M.D.

Staphylococci in Relation to Food Poisoning. G. M. DACK, PH.D., M.D.

Factors Affecting the Production and Potency of Staphylococcic Toxins. G. J. HUCKER, PH.D., and W. C. HAYNES.

Foods—The Importance of Preventing the Addition of Medicinal Substances and the Necessity for Keeping Foreign Material, and Added Poisons to a Minimum Amount. GEORGE H. MARSH.

Committee Report from Laboratory Section on Advisability of Laboratory Examination of Food Handlers. *Chairman,* MINNA CROOKS YOUNG.

Discussion. FRED W. TANNER, PH.D., and LEON BANOV, M.D.

INDUSTRIAL HYGIENE AND PUBLIC HEALTH ENGINEERING SECTIONS

Joint Session—Concert Hall, Auditorium

Presiding: A. P. MILLER, *Chairman,* Public Health Engineering Section, and ALBERT S. GRAY, M.D., *Chairman,* Industrial Hygiene Section.

The Application of Engineering Surveys to the Hatters' Fur Cutting Industry. J. J. BLOOMFIELD and J. M. DALLA VALLE.

Rôle of the Public Health Engineer in Industrial Hygiene and Sanitation. W. SCOTT JOHNSON.

Report of the Committee on Industrial Sanitation of the Public Health Engineering Section. *Chairman,* C. L. POOL.

Program of the Foundry Industry for Dust Control. E. O. JONES.

Industrial Hygiene Activities in the United States. R. R. SAYERS, M.D.

Section Business.

Thursday, 9:30 A.M.

EPIDEMIOLOGY

Second Session—Assembly Hall South, Auditorium

Active Immunization Against Whooping Cough: Interim Report of the Cleveland Experience. J. A. DOULL, M.D., and Associates.

The Epidemiology of Rural Tuberculosis. A. H. GRAHAM, M.D.

Reaction of Young Adults to Alum Precipitated Diphtheria Toxoid. RUTH E. BOYNTON, M.D., and RALPH V. ELLIS, M.D.

The Nature of Autarceologic Susceptibility to Poliomyelitis. W. LLOYD AYCOCK, M.D.

Thursday, 12:30 P.M.

COMMITTEE ON PROFESSIONAL EDUCATION

Special Luncheon—Dome Room, Hotel Roosevelt

Presiding: W. S. LEATHERS, M.D., *Chairman,* Committee on Professional Education.

Title to be announced. MILTON J. ROSENAU, M.D.

FOOD AND NUTRITION

Luncheon Session—La Louisiane

Thursday, 7:00 P.M.

SECOND GENERAL SESSION

Banquet—Tip Top Room, Hotel Roosevelt

The Dynamics of Public Health. HENRY E. SIGERIST, M.D.

Recognition of Members Joining the Association before 1897.

Announcement of Health Conservation Contest Awards.

Dancing.

Friday, 9:30 A.M.

INDUSTRIAL HYGIENE

Second Session—Memorial Hall South, Auditorium

Pneumonia and Tuberculosis Among Industrial Workers and Their Dependents. C. H. KIBBEY, M.D.

Industrial Morbidity and Mortality. D. K. BRUNDAGE.

Manganese Poisoning in Industry. W. D. MCNALLY, M.D.

Health Hazards in the Dry-Cleaning Industry. WILLIAM H. CARY, JR., and JOHN M. HEPLER.

Friday, 9:30 A.M.

VITAL STATISTICS

Third Session—Committee Room 58, Auditorium

The Prevention of Accidents as a Health Department Activity. EDWARD S. GODFREY, JR., M.D.

Uses of Life Tables in Vital Statistics Work. LOUIS I. DUBLIN, PH.D., and ALFRED J. LOTKA, D.SC.

A Statistical Study of Stillbirths in Hospitals. ELIZABETH C. TANDY, D.SC.

Measurement of Error of Death Rates in the Colored Race. RUTH PUFFER.

LABORATORY, FOOD AND NUTRITION AND PUBLIC HEALTH ENGINEERING SECTIONS

Joint Session—Concert Hall, Auditorium

SYMPOSIUM ON THE SANITATION OF EATING UTENSILS

Presiding: MAJOR A. PARKER HITCHENS, *Chairman,* Committee on the Sanitation of Eating Utensils; FRED W. TANNER, PH.D., *Chairman,* Food and Nutrition Section, and A. P. MILLER, *Chairman,* Public Health Engineering Section.

The Epidemiological Basis for Demanding Clean Dishes. LEON BANOV, M.D.

The Bacteriological Basis for Demanding Clean Dishes. STUART MUDD, M.D.

A Standard Technic for the Bacteriological Examination of Eating Utensils and Wash Water. LIEUTENANT COLONEL JAMES GORDON CUMMING, M.D., DR.P.H.

A Standard Technic for the Use of Test Organism in Determining the Efficiency of Dishwashing Devices. R. V. STONE, D.V.M.

A Proposed Standard Method for the Bacteriological Examination of Glassware and China. C. R. FELLERS, PH.D.

A Critical Study of Various Types of Dishwashing Devices. J. I. CONNOLLY.

A Critical Study of Various Types of Detergents and Disinfectants Recommended for Use in Dishwashing. W. L. MALLMANN, PH.D.

The Administrative Control of Dishwashing. GEORGE C RUHLAND, M.D.

Report of the Committee on the Sanitation of Eating Utensils. *Chairman,* MAJOR A. PARKER HITCHENS.

Friday, 9:30 A.M.

LABORATORY

Sixth Session—Memorial Hall North, Auditorium

SYMPOSIUM ON INTESTINAL PARASITES INCLUDING PROTOZOA

Presiding: RUTH GILBERT, M.D., *Chairman,* Laboratory Section, and W. D. STOVALL, M.D., *Vice-Chairman.*

The Laboratory Diagnosis of Amebiasis. W. H. KELLOGG, M.D.

The Practical Value and Significance of the Complement-Fixation Reaction in Amebiasis. HENRY E. MELENEY, M.D., and WILLIAM W. FRYE, PH.D.

Some Observations on the Practical Value of the Complement-Fixation Test in the Diagnosis of Amebiasis. CHARLES F. CRAIG, M.D., M.A. (Hon.), Col. U. S. Army, Retired.

The Decline of Amebic Dysentery in Chicago. A Study of Cyst Varieties During and Following the Chicago Epidemic of Amebic Dysentery. BERTHA KAPLAN SPECTOR, PH.D.

Intestinal Parasite Survey in Alabama. I. A Comparative Study of Two Hookworm Anthelmintics. W. H. Y. SMITH, M.D., J. G. MCALPINE, PH.D., and D. G. GILL, M.D., D.P.H.

Tapeworm Infestations in the Southern United States. T. F. SELLERS, M.D., and E. J. SUNKES.

Laboratory Procedures as Aids in the Diagnosis of Trichinosis. LUCY HEATHMAN, PH.D., M.D.

PUBLIC HEALTH EDUCATION AND CHILD HYGIENE SECTIONS

Joint Session—Auditorium, Auditorium

SCHOOL HEALTH EDUCATION

Presiding: W. W. BAUER, M.D., *Chairman,* Public Health Education Section.

A Modern Concept of Education. FANNIE B. SHAW.

Discussion. A. D. BROWNE, M.D.

The Function of the School in the Rural Program. RUTH GROUT.

Discussion. CARA L. HARRIS.

Appraising the Educational Content of a Health Service Program. GEORGE T. PALMER, DR.P.H., and MAYHEW DERRYBERRY, PH.D.

Friday, 9:30 A.M.

HEALTH OFFICERS

Second Session—Assembly Hall North, Auditorium

The Development of Full-Time District Health Administration in Mexico. JOSÉ SIUROB, M.D.

City Health Department Work in the Field of Housing. L. M. GRAVES, M.D.

Points of Interest in a Survey of Maternal Mortality. J. D. DOWLING, M.D.

International Health Indices. I. S. FALK, PH.D.

Actions of Health Officers Invalidated by the Courts. JAMES A. TOBEY, DR.P.H.

PUBLIC HEALTH NURSING SECTION AND AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Joint Session—Assembly Hall South, Auditorium

N.O.P.H.N. Survey and the School Nursing Situation. DOROTHY DEMING, R.N.

School Nursing in a Generalized Nursing Program. GRACE ROSS, R.N.

Discussion. AMELIA GRANT, R.N.

Development and Correction of Defective Speech in Children. FREDERICK VAN DOREN MARTIN, M.D.

Advantages of Nursery Schools. C. L. OUTLAND, M.D.

Friday, 12:30 P.M.

BUSINESS PROBLEMS OF THE HEALTH DEPARTMENT

Special Luncheon—Dome Room, Hotel Roosevelt

ROUND TABLE CONFERENCE

Presiding: WALTER N. KIRKMAN.

Health Department Financing and Social Security Budgets

Property Accounting in a State Health Department

Questions, Answers, and Discussion.

Friday, 2:30 P.M.

MOSQUITO-BORNE DISEASES

Special Session—Concert Hall, Auditorium

Presiding: CHARLES F. CRAIG, Colonel, U. S. Army, Ret.

Newer Epidemiology of Yellow Fever. FRED L. SOPER, M.D.

Malaria Control—Some Comments on the Past and Future. T. H. D. GRIFFITTS, M.D.

Discussion. A. H. FLETCHER, and S. L. WADLEY, M.D., C.P.H.

Friday, 2:30 P.M.

PUBLIC HEALTH EDUCATION

Second Session—Assembly Hall South, Auditorium

CLINIC ON PUBLICITY MATERIAL

(Criteria will be furnished by which the audience may evaluate samples shown.)

Literature. H. E. KLEINSCHMIDT, M.D.

Exhibit Material. THOMAS G. HULL, M.D.

Radio—Electrically Transcribed. BURT R. RICKARDS.

CHILD HYGIENE SECTION AND AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Joint Session—Assembly Hall North, Auditorium

The Place of Physical Education in Schools. VAUGHN S. BLANCHARD.

Discussion. JESSIE R. GARRISON.

Some Experiences with Vitamin D with Children. PAUL A. ROTHFUSS, M.D.

Heliotherapy in Its Application to Conditions Found in School Children. CHARLES J. BLOOM, M.D.

The Economic Factor in School Child Health. WALTER S. CORNELL, M.D.

MEETINGS OF OTHER ORGANIZATIONS

AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Tuesday, 9:30 A.M. First Session—Assembly Hall North, Auditorium

Presidential Address. CHARLES C. WILSON, M.D.

School Health Administration. EDWARD S. GODFREY, M.D.

Health Service in Schools. FELIX J. UNDERWOOD, M.D.

Dental Care for Children. WALTER T. MCFALL, D.D.S.

Wednesday, 2:30 P.M. Second Session—Concert Hall, Auditorium

Study of Child's Sleep. GLENVILLE GIDDINGS, M.D.

Some Experiences with Tonsillectomy. J. L. BOWMAN, M.D.

Health Education. FANNIE B. SHAW.

Thursday, 8:00 A.M. Room C, Hotel Roosevelt. Business Session. Breakfast.

Thursday, 9:30 A.M. Auditorium, Auditorium. Joint Session with Health Officers and Public Health Nursing Sections. (See page 15.)

AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS

Friday, 9:30 A.M. Assembly Hall South, Auditorium. Joint Session with Public Health Nursing Section. (See page 20.)

Friday, 2:30 P.M. Assembly Hall North, Auditorium. Joint Session with Child Hygiene Section. (See page 21.)

ASSOCIATION OF WOMEN IN PUBLIC HEALTH

Tuesday, 6:30 P.M. Gold Room, Hotel Roosevelt. Dinner.

CONFERENCE OF STATE LABORATORY DIRECTORS

Monday, October 19, 10:30 A.M. Room A, Hotel Roosevelt

Monday, 12:30 P.M. Room C, Hotel Roosevelt. Luncheon.

Monday, 2:30 P.M. Room A, Hotel Roosevelt

DELTA OMEGA

Wednesday, 12:30 P.M. Gold Room, Hotel Roosevelt. Luncheon.

HARVARD UNIVERSITY ALUMNI

Wednesday, 8:00 A.M. Room G, Hotel Roosevelt. Breakfast.

CONFERENCE OF STATE SANITARY ENGINEERS

Monday, October 19, 9:30 A.M. Memorial Hall North, Auditorium

Monday, 2:30 P.M. Memorial Hall North, Auditorium

Tuesday, 9:30 A.M. Concert Hall, Auditorium. Joint Session with Public Health Engineering Section. (See page 4.)

Wednesday, 6:30 P.M. Dome Room, Hotel Roosevelt. Annual Engineers' Stag Dinner.

JOHNS HOPKINS ALUMNI

Thursday, 8:00 A.M. Room E, Hotel Roosevelt. Breakfast.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

Thursday, 8:00 A.M. Room G, Hotel Roosevelt. Breakfast.

YALE ALUMNI

Wednesday, 8:00 A.M. Room E, Hotel Roosevelt. Breakfast.

STATE REGISTRATION EXECUTIVES

Tuesday, 2:30 P.M. Assembly Hall North, Auditorium

Wednesday, 9:30 A.M. Committee Room 58, Auditorium

Thursday, 9:30 A.M. Memorial Hall North, Auditorium. Joint Session with Vital Statistics Section. (See page 14.)

EXHIBITORS AT THE SIXTY-FIFTH ANNUAL MEETING

The following will present exhibits of products and equipment of value in health protection and promotion:

American Institute of Laundering
The Borden Company
Carnation Milk Sales Company
Difco Laboratories, Inc.
Eisele & Company
The J. B. Ford Sales Company
Fruit Dispatch Company
Geuder, Paeschke & Frey Company
Gilliland Laboratories
Golden Guernsey, Inc.
Hanovia Chemical & Manufacturing Company
Horlick's Malted Milk Company
Hygeia, The Health Magazine
Irradiated Evaporated Milk Institute
Jackson Brewing Company
Kellogg Company
Krim-Ko Company
Lederle Laboratories, Inc.
Libby, McNeill & Libby
Louisiana Department of Conservation
The Macmillan Company
J. A. Majors Company
Metropolitan Life Insurance Company
National Dairy Council
National Live Stock and Meat Board
Pet Milk Sales Company
Philip Morris & Co., Ltd., Inc.
Precision Scientific Company
E. R. Squibb & Sons
Vitex Laboratories, Inc.
Wallace & Tiernan Co., Inc.
The Wander Company
Winthrop Chemical Company, Inc.
Wisconsin Alumni Research Foundation

GENERAL INFORMATION

MEETING HEADQUARTERS

The Municipal Auditorium in New Orleans is official headquarters for the 65th Annual Meeting. All scientific sessions, except meal-time meetings, will be held here. Here also the commercial and scientific exhibits, registration and information will be established, as well as Association Offices, and Health Education and Publicity Center.

BREAKFASTS, LUNCHEONS, AND DINNERS

Most of these will be held in the Hotel Roosevelt. A few will be scheduled at some of the French restaurants, famous for Creole cooking.

HOTELS

While the Hotel Roosevelt will be residence headquarters for many, other New Orleans hotels are well worthy of patronage. Page 26 lists them, with their rates. All, including the Roosevelt, are equally distant from the Auditorium—approximately six blocks.

CLOTHING

The weather in New Orleans in October is mild and warm, but not hot. Light weight clothing is recommended.

Ordinary summer attire will be comfortable and appropriate with a light wrap or top coat for cool evenings. Such clothing is suitable for Florida and Havana as well. Delegates who are taking the post-convention trip should bring bathing suits if they want to take advantage of the opportunity to swim at Miami Beach.

RAILROAD RATES

It is expected that winter excursion rates to New Orleans will be in effect as usual after October 1. Since these are less than the convention fares, no identification certificates for Annual Meeting travel will be issued by the Association this year.

Delegates are urged to consult their local ticket agents for the most advantageous round trip fares available from their point of departure.

The rates from various centers to New Orleans are as follows:

RAILROAD RATES FROM VARIOUS CENTERS TO NEW ORLEANS, LA.

	Regular Rate One Way	*Regular Rate Round Trip*	*Special Round Trip*	*One Way Lower Berth*	*One Way Upper Berth*
Atlanta, Ga.	$14.82	$19.80*		$3.75	$3.00
Baltimore, Md.	34.70	47.10*	$46.70†	8.00	6.40
Boston, Mass.	46.35	72.10*	67.70†	11.25	9.00
Buffalo, N. Y.	38.40	60.05*	52.50†	9.00	7.20
Chicago, Ill.	28.13	37.55*	37.55†	6.75	5.40
Cincinnati, O.	25.24	33.65*	33.65†	6.00	4.80
Cleveland, O.	28.70	48.95*	46.10†	8.00	6.40
Dallas, Tex.	15.62	21.35**		4.25	3.40
Denver, Colo.	39.69	67.20**	53.35†	9.75	7.80
Detroit, Mich.	33.05	49.35*	46.45†	8.00	6.40
Duluth, Minn.	41.80	55.75**	55.80†	9.75	7.80
Fort Worth, Tex.	16.57	22.60**		4.25	3.40
Indianapolis, Ind.	25.95	40.25*	36.70†	6.00	4.80
Jacksonville, Fla.	18.38	24.50*		4.25	3.40
Kansas City, Kan.	26.50	35.35**	35.35†	6.00	4.80
Louisville, Ky.	23.23	31.00*	31.00†	5.50	4.40
Los Angeles, Cal.	59.86		102.00‡	14.00	11.20
Memphis, Tenn.	11.83	15.80*		3.00	2.40
Milwaukee, Wis.	30.68	40.95**	40.95†	6.75§	5.45§
Minneapolis, Minn.	38.42	51.25**	51.25†	9.25	7.40
Nashville, Tenn.	18.35	24.50*		4.25	3.40
New York, N. Y.	40.30	58.30*	55.80†	9.75	7.80
Omaha, Nebr.	32.48	43.35**	43.35†	8.25	6.60
Philadelphia, Pa.	37.60	52.90*	51.40†	9.00	7.20
Pittsburgh, Pa.	34.60	52.35*	46.70†	8.00	6.40
Portland, Ore.	78.26	126.40‡		19.00	15.20
Salt Lake City, Utah	53.84	71.80**	73.45†	14.00	11.20
San Francisco, Calif.	63.86	102.00‡		14.00	11.20
Seattle, Wash.	82.06	126.40‡		19.00	15.20
St. Louis, Mo.	21.14	28.20*	28.20†	5.25	4.20
Washington, D. C.	33.50	44.70*	44.70†	8.00	6.40
Montreal, Canada	52.90		74.90†	12.25	9.80
Halifax, N. S.	69.30		108.65†	16.75	13.40
Ottawa, Canada	52.97		74.45†	12.75	10.20
Quebec, Canada	58.45		85.05†	13.50	10.80
Toronto, Canada	43.30		59.15†	11.75	9.40
Vancouver, B. C.	82.06	126.40‡		19.00	15.20

* 15 day limit, on sale daily
† 18 day limit, on sale winter months 1935–36 (beginning October 1)
** 10 day limit, on sale daily
‡ All Year Tourist, on sale daily
§ Pullman to Chicago

TRAIN SCHEDULES FROM PRINCIPAL CITIES

From Eastern Seaboard Cities Concentrating at New York, Philadelphia, and Washington

SPECIAL PULLMANS

Blue Train	*Red Train*
Leaves Saturday, October 17, and arrives New Orleans Monday the 19th	Leaves Sunday, October 18, and arrives New Orleans Tuesday the 20th

Lv. Boston — New Haven RR . . . . . 4:00 p.m.
Ar. New York—Penna. RR Station . . . . . 9:15 p.m.

Lv. New York — Penna. RR . . . . . 9:50 p.m.
Lv. Newark . . . . . 10:07 p.m.
Lv. Trenton . . . . . 10:58 p.m.
Lv. Philadelphia — (30th St. Station) . . . . . 11:42 p.m.
Lv. Baltimore . . . . . 1:27 a.m.
Lv. Washington—So. Railway . . . . . 3:00 a.m.
Lv. Greensboro . . . . . 9:45 a.m.
Lv. Atlanta — West Point Route . . . . . 6:00 p.m.
Lv. Montgomery—L. & N. Railroad . . . . . 10:55 p.m.
Ar. **New Orleans** . . . . 7:45 a.m.

Delegates desiring to do so may leave New York 2:30 p.m., Philadelphia 4:09 p.m. and Washington 7:00 p.m., daily, and arrive New Orleans 9:30 o'clock next night.

From Buffalo, Cleveland, Pittsburgh, Detroit, Columbus, etc., concentrating at Cincinnati

Saturday, October 17	Sunday, October 18

Lv. Buffalo—N. Y. C. RR. 11:57 p.m.
Ar. Cincinnati . . . . . 8:40 a.m.

Lv. Cleveland — Big Four Route . . . . . 12:15 a.m.
Ar. Cincinnati . . . . . 7:15 a.m.

Lv. Pittsburgh — Penna. RR . . . . . 12:15 a.m.
Ar. Cincinnati . . . . . 7:15 a.m.

Lv. Detroit—MC-Big Four Route . . . . . 11:45 p.m.
Lv. Toledo . . . . . 1:40 a.m.
Ar. Cincinnati . . . . . 7:20 a.m.

Lv. Columbus — Penna. RR . . . . . 5:18 a.m.
Ar. Cincinnati . . . . . 8:15 a.m.

Sunday, October 18	Monday, October 19

Lv. **Cincinnati**—L. & N. RR (The Pan-American) . . . . . 10:00 a.m.
Lv. Louisville . . . . . 12:22 p.m.
Lv. Nashville . . . . . 4:45 p.m.
Lv. Birmingham . . . . . 9:25 p.m.

Monday, October 19	Tuesday, October 20

Ar. **New Orleans**—L. & N. RR . . . . . 7:55 a.m.

Special A.P.H.A. sleeping cars will start from Cincinnati and other cities where sufficient number of persons leave in a group.

From Chicago and St. Louis For Members from Northwestern and Midwestern Points

Sunday October 18	Monday, October 19

Lv. Chicago—Ill. Cent. RR 9:00 a.m.

Lv. St. Louis . . . . . 1:00 p.m.

Lv. Memphis . . . . . 10:45 p.m.

Monday, October 19	Tuesday, October 20

Ar. **New Orleans**. . . . . 9:15 a.m.

Special sleeping cars will be operated from Chicago and St. Louis.

Notify the Association Office at Once if You Wish to Ride American Public Health Association Special Trains to New Orleans

NEW ORLEANS HOTELS

Hotels	Room Capacity	Single		Double		Apartments
		Without Bath	With Bath	Without Bath	With Bath	
Bienville	120	$2.00	$2.50–$3.00	$3.00	$3.50–$6.00	
De Sota	100	1.50	2.50– 3.00	2.50	3.00– 6.00	$6.00–$12.00
Jung	650	....	2.50– 4.00	....	3.50– 6.00	
LaSalle	...	1.50– 2.00	2.00– 2.50	2.50– 5.00	3.00– 5.00	5.00– 7.00
Monteleone	600	1.50– 2.00	2.50– 4.00	2.50	3.50– 6.00	
New Orleans	275	....	2.50– 3.50	....	3.50– 5.00	
Pontchartrain	200 (80 apts.)					4.00– 10.00
Roosevelt	...	....	3.00– 5.00	....	4.00– 8.00	10.00
St. Charles	...	....	2.50– 5.00	....	3.50– 8.00	8.00– 20.00
Orleans	50	1.50	2.00– 2.50	2.00– 2.50	2.50– 3.00	

.....*(Cut off on this line and mail to the hotel of your choice)*.....

HOTEL RESERVATION BLANK FOR NEW ORLEANS MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
OCTOBER 20–23, 1936

To .....
(Name of Hotel)

Please reserve for me ..... rooms for ..... persons for the A.P.H.A. Meeting.

Single room ..... Double room .....

Maximum rate per day for room $..... Minimum rate per day for room $.....

I expect to arrive ..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street address .....

City ..... State .....

POST-CONVENTION TOUR TO FLORIDA AND CUBA

The Association will sponsor an 8-day, all expense, conducted tour after the Annual Meeting by train, motor, and steamer through Florida to Cuba. The trip will provide enjoyment, interest, and satisfaction in large measure but it is planned definitely for more than pleasure. It may be regarded as an official tour of inspection of Florida and Cuban public health work.

Expenses have been kept to a minimum through the generous hospitality of our hosts in Florida and Havana. Dr. W. A. McPhaul, State Health Officer of Florida, is the Chairman of the Committee on Arrangements in his state. His committee is composed of the health officers and civic authorities of the communities included in the itinerary. Dr. J. R. McEachern of Tampa promises a surprise evening, taking full advantage of that city's unusual entertainment facilities. Orlando is planning a reception, dance, and buffet supper. Dr. George N. MacDonell, Health Officer of Miami, on behalf of Miami and Miami Beach sends a suggestion for a day's activities which even include a dip in the ocean on famous Miami Beach.

Dr. Domingo Ramos, Director of Sanitation, acting for the Cuban Government, proposes the following schedule for the two days in Havana:

October 28, 1936

9:00 A.M. Inspection Trip. Ministry of Health and Welfare, Finlay Institute, Hospitals and Clinics.
1:00 P.M. Luncheon. Havana Yacht Club.
3:00 P.M. Sight-seeing in Marianao and Countryside.
5:00 P.M. Tea at Havana Country Club.

October 29, 1936

11:00 A.M. Scientific Session. Hotel Nacional.
1:00 P.M. Luncheon at National Hotel.
3:00 P.M. Free for sight-seeing.

This is the barest outline of what the delegate may expect. A detailed itinerary, with costs and travel information, has been mailed to every member of the Association. Though it occupies 24 pages, it still does not include all the things planned for the recreation and education of the post-convention tour group.

Members of the Association, their families and friends are invited to take the trip. Reservations should be made at once. Additional copies of the itinerary may be obtained from the Association office.